

***SYSTEM BOOK 1: KATRINGA***

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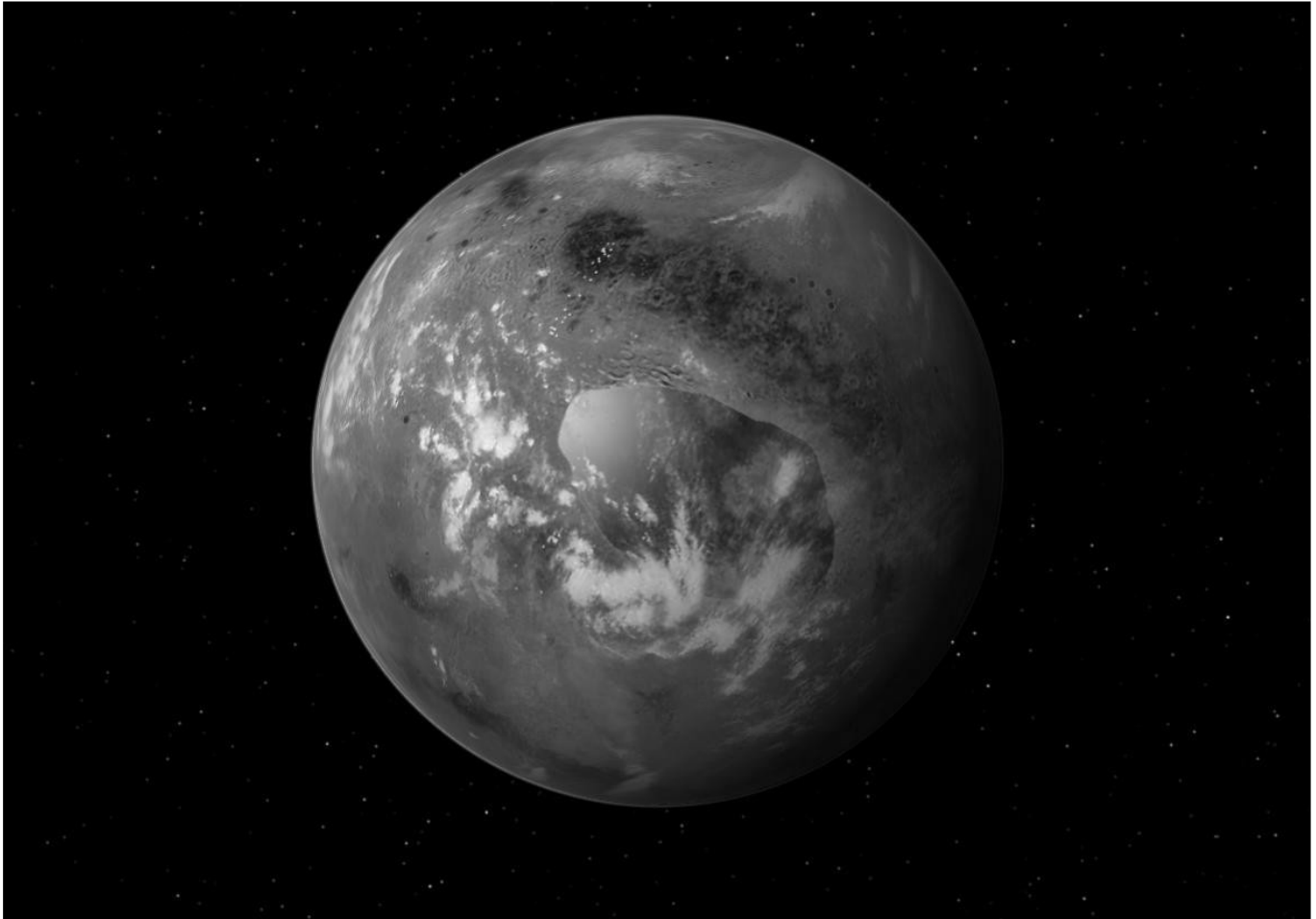
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**SPICA**  
P U B L I S H I N G

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# INTRODUCTION

**System Book 1: Katringa** is the first in a series of books by *Spica Publishing* that present a fully described planetary system, with scientifically accurate physical data (given the state of knowledge in 2010) and an interesting social setting to enable Referees to run exciting adventures there. While designed for use with the *Traveller* rules system, these books can be used for any science fiction role playing game as the specific rules involved have been kept to a minimum.

## REQUIRED MATERIALS

**Traveller Main Rulebook:** To get the most from this book you will need at least the *Traveller Main Rulebook*, specifically the section on World Creation (167 TMB).

**Beltstrike:** Simplified rules for belt mining are provided in this book, but for greater detail a copy of *Beltstrike* from *Mongoose Publishing* would be useful for belting operations.

**References to Other Books:** In this work, references to specific pages in other *Traveller* books and products are shown as the page number followed by a code for the relevant book, both in italics, thus: 28 TMB or (28 TMB).

- Traveller Main Book - TMB
- Traveller Adventure 1: Beltstrike – BST
- Traveller Book 2: High Guard - HG
- System Book 1: Katringa - SB1

**Die Throw & Notation Conventions** The die throw and notation conventions used in this book are the same as those described on 3 TMB.

**Tasks and Skills:** The rules for tasks (and the use of skills in tasks) in this book are the same as those in the Tasks and Skills chapter (48 TM).

**Standard Time Units:** When “days”, “weeks”, “months”, and “years” are mentioned in the text, they refer to the “Standard Time Units” used on Earth (i.e. a “day” is equal to 24 hours, a “year” is equal to 365.25 “days”). Time units local to Katringa are used in the “Society” section, and are described on 12 SB1.

**Volume Units:** We refer to volume in terms of displacement tons (“dtons”). A displacement ton is approximately 14 cubic metres. If an object’s mass is required, then multiply the volume in cubic metres by its density in kg/m<sup>3</sup>.

## HOW TO USE THIS BOOK

*System Book 1: Katringa* is designed to be slotted into any high-tech interstellar science fiction setting, presenting a planetary system governed by a large mining corporation that is exploiting a rich planetoid belt close to the system’s primary star.

Some basic assumptions are made regarding the setting of the book – for example, the corporation that runs Katringa also owns the starport, but in other settings the starport may be owned by another power (e.g. the interstellar authority).

Another assumption is that there is an interstellar community with which to trade and interact with. Also, the technology assumed to be in use here is the default that is described in the TMB. As such, some alterations may be required in order to fit Katringa into existing settings, but GMs are encouraged to change any part of this work in order to avoid these issues in their own games.

Katringa may be used as a stop-over for existing adventuring groups, and some adventure seeds are provided to occupy the characters. An alternative model is the Katringa-based campaign, where the characters are all workers who have probably spent much of their lives in the Katringa system. This would allow players to interact much more with the local flavour and may serve as the basis for a long campaign, perhaps beginning as miners on their first foray into the Idowa Belt and culminating in corporate intrigue after the PCs have risen through the ranks of the company.

Above all, have fun with the setting and make it what you want it to be!

## ABOUT THE AUTHORS

**RICHARD HAZLEWOOD** has been playing *Traveller* since 1977. He served eight years in the US Navy, operating nuclear reactors on submarines. He enjoyed that so much he got out of the Navy and into aviation. Richard has a Master’s Degree in Aerospace Engineering and works for a major US airline. He has two grown sons and lives with his wife and two dogs in the mid-western United States.

**CONSTANTINE THOMAS** has been world-building since the late 1980s, and keeps up with the latest science news in his never-ending quest to create more realistic planetary systems. He has a doctorate in Planetary Science, has written two articles for JTAS Online, and is one of the co-authors of Steve Jackson Games’ *Transhuman Space: Under Pressure*. He currently lives in British Columbia, Canada.

## FEEDBACK

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# THE KATRINGA SYSTEM

## OVERVIEW

The Katringa system is located off of the main star lanes; Katringa itself is a rather uninviting world with an exotic atmosphere; it has frozen and liquid water on its surface, and is classified as a Cold world. The system is controlled by the Horizons Unlimited Corporation, a company that specialises in exploiting systems that have no habitable worlds. The rich Idowa Belt is the primary source of income for the entire system, although its location so close to its bright primary star makes it dangerous to exploit.

Humans have settled on Katringa, located at the very outer edge of the habitable zone, and specially designed mining ships dive into the belt for short periods to extract valuable ore and other materials and bring them back to Katringa to trade with other systems.

## THE KATRINGA SYSTEM

**UWP:** Katringa B4A1586-A Ni G

**Star:** Ayo (A8 IV)

### SYSTEM DATA

Orbit #	Orbit (AU)	Name	UWP
1	0.65 - 1.20	Idowa Belt	D000210-9
2	1.9	Accra	LGG
a	464,000 km	Garu	X400000-0
b	736,000 km	Eniola	E200113-9
3	3.8	Yendi	LGG
a	230,000 km	Wa	X200000-0*
b	382,000 km	Osumare	E200000-0*
c	788,000 km	Adisa	D200211-9
4	10.4	Katringa	B4A1586-A
a	40,100 km	Temitope	BS00468-A
5	17.6	Olufemi	ES00000-0*

\*: see text description for more details.

## STELLAR DATA

The star Ayo and its planetary system are just under a billion years old, and as a result the star and its worlds are still rather active. Ayo began its life as an A0 V star, and began its sub-giant phase about four million years ago. Although Ayo's luminosity has increased over time, it has temporarily peaked and will slowly decrease over the next 15 million years before rapidly increasing again as it enters its Red Giant phase.

### STELLAR DATA

<b>Star name</b>	Ayo
<b>Star type</b>	A8 IV
<b>Star Colour</b>	Blue-White
<b>Evolutionary Phase</b>	Sub-Giant
<b>Age</b>	986 million years
<b>Star Mass</b>	2.2 Sols
<b>Star Luminosity</b>	46 Sols
<b>Temperature</b>	7,600 K
<b>Star Radius</b>	3.8 Sols (0.017 AU)

Ayo is a very luminous star. Its energy output is distributed between infrared, visible, and UV in a ratio of roughly 25%/50%/25% – this means that it is 11.5 times more luminous than Sol in the UV and IR spectrum, and 23 times more luminous than Sol in visible light (adding up to a combined luminosity of 46 Sols).

Ayo is actually quite stable compared to other type A stars, and is not significantly variable. Its rotation period is 12.7 days, with a 9.6 standard year starspot cycle. Stellar flares, prominences, and coronal mass ejections are about as common as they are around Sol, though somewhat more powerful. The heavily shielded ships that operate in the belt are protected from these eruptions, and they often broadcast warnings to the rest of the system if significant mass ejections are on the way. Stellar eruptions are not a significant hazard beyond the orbit of Accra.

At Katringa, Ayo appears as a dazzlingly bright star with a disc about a third as wide as Sol as seen from Earth. Its apparent brightness is about the same as Sol from Earth, but its light is whiter in colour. Optically it is roughly equivalent to Sol at this distance so it may be briefly glanced with the unprotected eye without protection, but prolonged viewing would lead to retinal damage and blindness.

At the Idowa Belt, Ayo appears a hundred times brighter than it does at Katringa, and is ferociously bright – so bright that even glancing at the light reflected from ships and asteroids would instantly destroy an unprotected retina. The Heat and Radiation Shielding required by ships operating at this distance include optically dense shades for windows and sensors. At the inner edge of the belt, the angular diameter of the disk of Ayo is ten times the size of Sol as seen from Earth.

Ayo's current orbital zones are listed below:

### ORBITAL ZONES

Zone	Distance from Star
<b>Inner</b>	< 4.62 AU
<b>Habitable</b>	4.62 – 9.56 AU
<b>Middle</b>	9.56 – 17.23 AU
<b>Outer</b>	> 17.23 AU
<b>100D Jump Limit</b>	3.4 AU

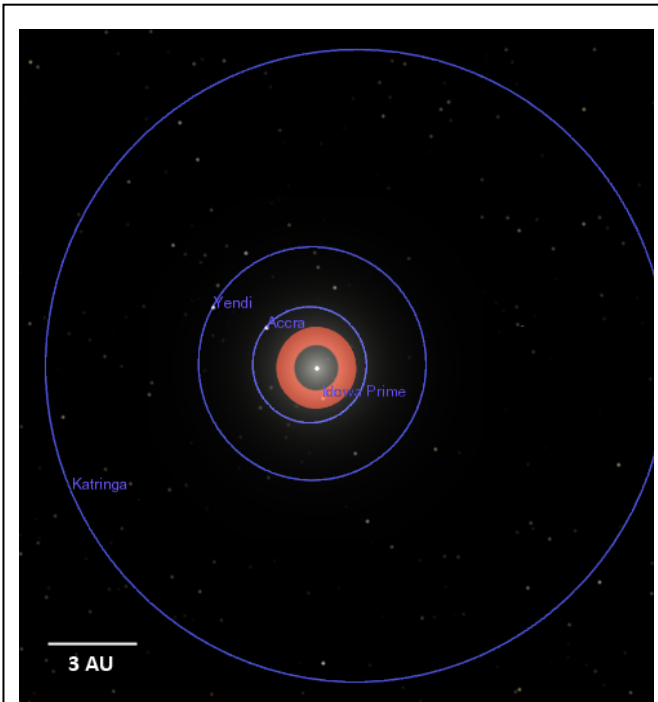
The gas giant Yendi orbits just outside Ayo's 100D limit; jump is only possible beyond this distance from the star. Travel within this distance (including trips to Accra and the Idowa Belt) must be conducted using Manoeuvre Drives.

The orbital distance of each planet from Ayo varies due to their eccentric orbits around their star. The following table shows the current orbital distance of each planet from Ayo.

### CURRENT ORBITAL DISTANCE FROM AYO

<b>Idowa Prime</b>	0.999 AU
<b>Accra</b>	2.131 AU
<b>Yendi</b>	3.977 AU
<b>Katringa</b>	9.110 AU
<b>Olufemi</b>	20.270 AU

Travel times between the planets in the star system are presented in the Travel Times table, and are calculated based on the planets' current locations relative to each other. Since all of the bodies in the system are moving at different rates around Ayo, these travel times are only valid for the current date; Referees should develop their own tables if travel times are required at different dates.



Current orbital configuration of the major bodies in the Katringa system (Olufemi not shown). Note that Olufemi (9 SB1) is not shown.

## TRAVEL TIME TABLE (FOR CURRENT DATE)

Origin	Destination	Distance (AU)	Travel Time (standard days)	
			1G	2G
Katringa	Idowa Prime	8.942	4.23	2.99
Katringa	Accra	8.391	4.10	2.90
Katringa	Yendi	7.614	3.91	2.76
Katringa	Olufemi	20.866	6.47	4.57
Katringa	Temitope	0.000273	0.023	0.017
Idowa Prime	Accra	2.976	2.44	1.73
Idowa Prime	Yendi	4.715	3.07	2.17
Idowa Prime	Olufemi	19.290	6.22	4.40
Accra	Yendi	1.893	1.95	1.38
Accra	Olufemi	22.013	6.64	4.70
Yendi	Olufemi	23.270	6.83	4.83

## PLANETARY SYSTEM

### AYO I: IDOWA BELT

UWP: D000210-9

Inner boundary	0.65 AU
Outer boundary	1.20 AU
Orbital period at inner edge	128.55 days
Orbital period at outer edge	322.45 days
Composition	rocky/metallic
Total Mass	0.004 Earth Mass

The Idowa Belt is more massive and more densely packed than Sol's asteroid belt. It is likely to have originally contained at least 1.5 earth masses of material, with more material pushed in from the outer system as the two gas giants (Accra and Yendi) rapidly migrated into the inner system during their formation.

The gravitational influence of the gas giants ejected most of the primordial asteroids within about 30 million years of the system's formation, and some of the asteroids in the outer system are believed to have originated in the Idowa Belt. Although only about 0.004 earth masses of material remain, it is contained within a much more compact volume than Sol's asteroid belt. The Idowa Belt is also much more densely packed than Sol's Asteroid Belt because of this; however, the average separation between asteroids is still of the order of several hundreds of thousands of kilometres.

The asteroids in the belt are a mixture of S-type and M-type (silicate and metallic); the high local temperatures have long since driven off any volatiles and organic content. About 15% of the asteroids are metallic; these are fragments of the shattered cores of larger, differentiated asteroids that were broken up by collisions in the past. The rest of the asteroids are either an undifferentiated mixture of rock and metal that require more processing in order to extract the useful ores, or are rubble piles held together by feeble gravity.

The belt has a peak density at approximately 0.85 AU. This is believed to be the former orbit of a dwarf planet that was catastrophically disrupted by large impacts when the gas giants migrated into their current orbits. Metallic asteroids are more common in this dense region.

The actual population of the Idowa Belt is significantly higher than the UWP would suggest. Thousands of belters visit the system for a few weeks to prospect and mine asteroids before heading back to Katringa.

Because of the belt's proximity to Ayo, all ships operating in the Idowa Belt require both Heat Shielding and Radiation Shielding to survive the harsh conditions.

Since the Idowa Belt is located within 100 diameters of Ayo, most of the ships operating within the belt are not jump capable. The typical belt-mining ship displaces between 100 and 600 dtons, usually has a 2G manoeuvre drive, and is owned and operated by a single Tribe (see 15 SB1). Six ore processing factories run by HU are located in the Idowa Belt; for a fee, they will process the raw ore mined by the Tribes. The Tribes are responsible for bringing the ore to Katringa before they are paid.

The Idowa Belt is somewhat free-wheeling, with several Tribes engaged in disputes over claims. While actual combat is rare, unfortunate accidents are all too common. Whether these accidents are intentional or due to the extremely hostile conditions remain a mystery that Horizons Unlimited doesn't seem to care about. The delay in enforcement by having to have ships from Katringa respond to claim jumping has caused problems in the past and at least one Tribe is actively taking advantage of the delays to skim ore from other claims. While not strictly claim jumping, this practice has caused some hostile encounters in more isolated areas of the belt.

## IDOWA PRIME

UWP: DS00210-9

<b>Radius</b>	779 km
<b>Density</b>	0.88 Earth
<b>Mass</b>	0.002 Earths
<b>Surface gravity</b>	0.108 g
<b>Orbital distance</b>	1.01 AU
<b>Orbital Period</b>	248.99 days
<b>Rotation Period</b>	15.52 hours
<b>Orbital eccentricity</b>	0.021
<b>Axial tilt</b>	8°
<b>Atmosphere</b>	None
<b>Hydrographics</b>	None
<b>Surface Temperature</b>	688 K (415°C)

The largest object in the Idowa Belt is a dwarf planet called Idowa Prime. Idowa Prime itself is a large, cratered, spherical body with a metallic core and evidence of volcanic resurfacing. A habitat is located under its surface, protected from the harsh radiation of Ayo.

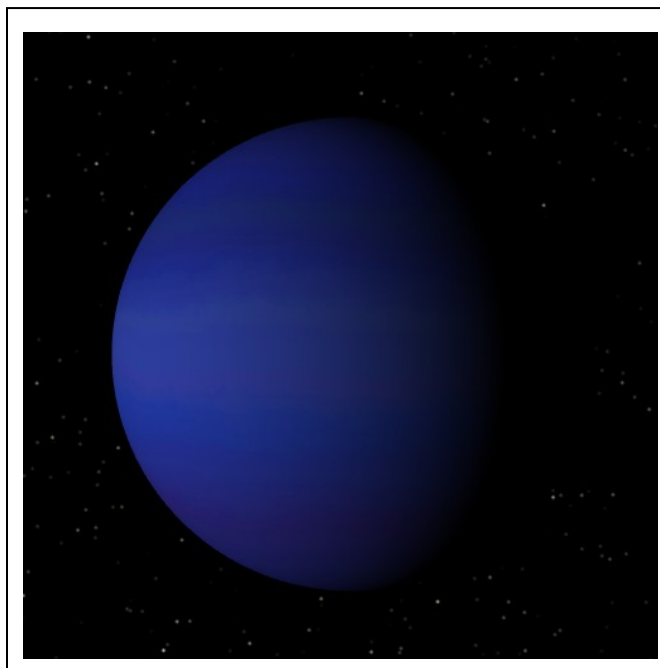
Idowa Prime is a small operation run by the Horizons Unlimited Corporation (HU) as a Search and Rescue base and as a Claims Office. All metals are taken from the belt to Katringa for processing and sale.

The seven hundred people permanently assigned to Idowa Prime are a mixture of a dozen different Tribes and a small number of HU employees brought in from other systems. On Idowa Prime, HU imposes a Law Level of 5 and personal concealable weapons are banned along with automatic weapons and military-grade weapons. Most people on Idowa Prime do not carry any weapons at all.

The area around the HU enclave on Idowa Prime has grown over the years with small shops and bars catering to the beltlers, and is known as "The Digs". Many illicit deals are made in The Digs, and there is a thriving black market for illegal material produced under HU's radar. As a result, many tribe-members are involved in some kind of organized crime, largely operated from elsewhere in the system.

HU has four Modular Cutters (*135 TMB*) assigned to the asteroid, and it uses them primarily for Search and Rescue operations; due to the high levels of radiation and heat from the primary star, at least one of the Cutters is off-base at any one time. While HU maintains a Claims Registry office on the asteroid, enforcement of claims is handled by the governmental offices on Katringa.

## AYO II: ACCRA



<b>Semi-major Axis</b>	1.897 AU
<b>Orbital Eccentricity</b>	0.130
<b>Perihelion</b>	1.651 AU
<b>Aphelion</b>	2.143 AU
<b>Orbital period</b>	1.755 years
<b>Radius</b>	73,600 km
<b>Density</b>	0.24 Earths
<b>Mass</b>	1.2 Jupiters (374 Earths)
<b>Gravity</b>	2.81 g
<b>Axial tilt</b>	1°
<b>Magnetic field?</b>	Yes (global, Jovian)
<b>Atmosphere</b>	Hydrogen/Helium
<b>Perihelion temperature</b>	548 K (275°C)
<b>Mean temperature</b>	511 K (238°C)
<b>Aphelion temperature</b>	481 K (208°C)
<b>Rotation period</b>	15.9 hours

Accra is a gas giant that is slightly larger and more massive than Jupiter. The high temperature at the cloud tops precludes the formation of water clouds, and as a result Accra is dark blue in colour and relatively featureless.

Accra has two large rocky moons and 27 asteroidal moons (most likely captured from the Idowa Belt). Accra has no ring system. The major moons - Garu and Eniola - are locked in a 2:1 orbital resonance and as a result are both geologically active worlds. They are both volcanically active, rocky bodies, with smooth resurfaced regions and cratered highland regions similar to Earth's moon. Both satellites are tide-locked, always presenting the same face to Accra.

Because of the high temperatures caused by Accra's proximity to Ayo, all ships require Heat Shielding in order to operate in the Accra system.

## GARU

UWP: X400000-0

<b>Radius</b>	3142 km
<b>Density</b>	0.69 Earth
<b>Mass</b>	0.083 Earth
<b>Surface gravity</b>	0.341 g
<b>Orbital distance</b>	463,940 km (6.3 Radii)
<b>Orbital Period</b>	45.9 hours (1.9 days)
<b>Rotation Period</b>	1.9 days (tide-locked)
<b>Atmosphere</b>	None
<b>Hydrographics</b>	None
<b>Surface Temperature</b>	512K (239°C)

Garu is a very large moon, almost as big as Katringa itself. It orbits deep within Accra's magnetic field, and as a result the radiation environment on its surface is extremely hostile. Volcanoes constantly erupt material in massive plumes up to 100 kilometres above the surface, and the moon is subject to frequent tidal quakes. Garu is uninhabited, and has only been surveyed from orbit. The surface is too unstable and hostile for mining operations, as most of it is constantly being resurfaced by active lava flows. Several regions have been identified that may contain significant ore deposits, if only they could be safely extracted.

## ENIOLA

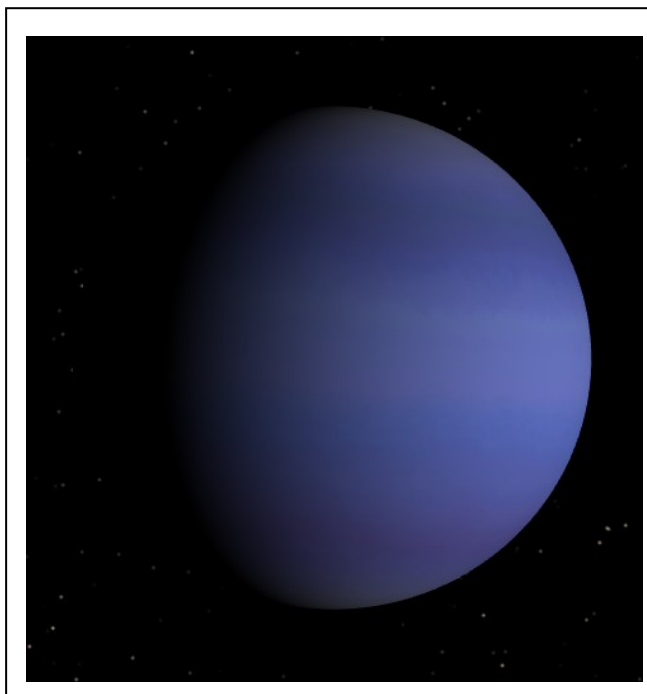
UWP: E200113-9

<b>Radius</b>	1968 km
<b>Density</b>	0.63 Earth
<b>Mass</b>	0.018 Earth
<b>Surface gravity</b>	0.194 g
<b>Orbital distance</b>	736,274 km (10 Radii)
<b>Orbital Period</b>	90.3 hours (3.8 days)
<b>Rotation Period</b>	3.8 days (tide-locked)
<b>Atmosphere</b>	None
<b>Hydrographics</b>	None
<b>Surface Temperature</b>	511K (238°C)

Eniola is more geologically stable than Garu, but still has several active volcanoes and perpetual low level seismic activity. A small mining operation is located near one of the active volcanic ranges. The outpost personnel are mining the rich metals upwelling from the moon's interior. The entire population of Eniola is comprised of Horizons Unlimited employees; they are not from one of the Katringa Tribes. Each employee normally has one week out of every four as leave to spend on Katringa.

The employees of the Eniola mining facility have fewer privileges than do the tribal members of the other inhabited worlds in the system. All fifty of the Eniola miners come from a nearby Poor world and are under long-term contracts with HU that make them slaves in all but name. The huge fees that HU charges the miners for room and board at the outpost eat up most of the wages that the miners are paid. Several of the miners on Eniola have recently petitioned the government on Katringa for recognition as a Tribe but so far their request has been unanswered, largely due to the corrupt administration's unwillingness to upset HU.

## AYO III: YENDI



<b>Semi-major Axis</b>	3.793 AU
<b>Orbital Eccentricity</b>	0.051
<b>Perihelion</b>	3.599 AU
<b>Aphelion</b>	3.987 AU
<b>Orbital period</b>	4.961 years
<b>Radius</b>	52,500 km
<b>Density</b>	0.19 Earth
<b>Mass</b>	107 Earths, 0.336 Jupiters
<b>Gravity</b>	1.573 g
<b>Axial tilt</b>	3°
<b>Magnetic field?</b>	Yes (global, Jovian)
<b>Atmosphere</b>	Hydrogen/Helium
<b>Perihelion temperature</b>	362 K (89°C)
<b>Mean temperature</b>	353 K (80°C)
<b>Aphelion temperature</b>	344 K (71°C)
<b>Rotation period</b>	11.6 hours

Like Accra, Yendi is a hot hydrogen/helium gas giant, generally blue with some darker banding and spots. When Yendi is furthest from its primary, the polar regions cool enough to allow some sparse water/sulphur clouds to persist at the highest latitudes.

Yendi has three large rocky moons, thirteen asteroidal moons and no ring system. All three major moons are tide-locked with respect to their primary.

The two outer moons - Osumare and Adisa - were involved in a 3:1 orbital resonance until about 200 million years ago, but broke out of it due to continuing tidal evolution. The resonance pumped up the orbital eccentricities of both moons, causing significant tidal heating in their interiors. Now that they are out of the resonance, the level of volcanic activity on the moons is gradually returning to more normal levels, and both satellites have large, dark 'maria' regions (like Earth's moon) where volcanic resurfacing has occurred.



## WA

**UWP:** X200000-0 (Mojisola: D000214-9)

<b>Radius</b>	864 km
<b>Density</b>	0.552 Earth
<b>Mass</b>	0.001 Earth
<b>Surface gravity</b>	0.075 g
<b>Orbital distance</b>	229,500 km (4.4 radii)
<b>Orbital Period</b>	29.4 hours (1.2 days)
<b>Rotation Period</b>	1.2 days (tide-locked)
<b>Atmosphere</b>	None
<b>Hydrographics</b>	None
<b>Surface Temperature</b>	367 K (94°C)

Wa has an unusually low albedo; its geologically inert surface is blanketed in a dark, basaltic dust that fills and obscures many of its craters. Its density is also somewhat low for a rocky object, though not anomalously so. This moon is uninhabited, and only a few spots have been surveyed from the surface. No easily accessible mineral deposits have been found and no outposts have ever been established on the satellite itself.

Since Yendi is outside Ayo's 100D limit, many starships use it as a refuelling point while passing through the Katringa system to other destinations. The small Bongani tribe have capitalised on this by purchasing a surplus 5,000 dton mining platform from HU and converting it into a fuel refining station which they have named "Mojisola". The Bongani have five fuel shuttles that skim hydrogen from Yendi and return it to the refinery, which then processes the fuel and sells it to transiting starships or to mining ships that do not wish to pay HU's prices for refined fuel. Ships that use this refuelling option may purchase refined fuel for Cr. 400 per dton. At any given time there are 1d3-1 ships present for refuelling.

Mojisola is located at the L1 Lagrange point directly between Yendi and Wa, 3,730 km above the moon's sub-jovian point - as a result is legally a spacecraft and not a settlement. While local law does not prevent a tribe from setting up and profiting from a refuelling facility, HU is not happy about its existence and tries to discourage people from using its services. The platform is armed with four double turrets; two turrets mount sandcasters and two mount beam lasers. Mojisola has been raided several times by pirates, but each time the Bongani have been able to drive them off.

The Bongani tribe have been very vocal in their support of the miners on Adisa in their efforts to unionize but rumours that they are smuggling guns and other equipment to the miners remain unsubstantiated.

Mojisola's social UWP is listed separately from Wa, since it is not actually located on Wa's surface. While refined fuel is available there, Mojisola is classified as a Class D starport in all other regards.

## OSUMARE

**UWP:** E200000-0 (E200204-9)

<b>Radius</b>	1972 km
<b>Density</b>	0.619 Earth
<b>Mass</b>	0.018 Earth
<b>Surface gravity</b>	0.192 g
<b>Orbital distance</b>	381,600 km (7.3 radii)
<b>Orbital Period</b>	63.1 hours (2.6 days)
<b>Rotation Period</b>	2.6 days (tide-locked)
<b>Atmosphere</b>	None
<b>Hydrographics</b>	None
<b>Surface Temperature</b>	359 K (86°C)

Osumare has an abandoned mining outpost located near the North Pole. It was abandoned about fifty years ago due to increased seismic activity in the area. Two other facilities near the equator were abandoned over a hundred years ago for similar reasons.

The equatorial mines have supposedly collapsed, but this is a fiction that is being used as a cover by rogue members of the Hathori Tribe to avoid unwelcome attention. These Hathori have decided that piracy is a more lucrative career and are using one of the mines as a secret base of operations from which to launch attacks on ships travelling between Katringa and the Idowa Belt (see the Pirate Hunters adventure seed, 22 *SB1*). The actual UWP of Osumare is shown in parentheses.

## ADISA

**UWP:** D200211-9

<b>Radius</b>	1524 km
<b>Density</b>	0.598 Earth
<b>Mass</b>	0.008 Earth
<b>Surface gravity</b>	0.143 g
<b>Orbital distance</b>	788,000 km (15.0 radii)
<b>Orbital Period</b>	187.1 hours (7.8 days)
<b>Rotation Period</b>	7.8 days (tide-locked)
<b>Atmosphere</b>	None
<b>Hydrographics</b>	None
<b>Surface Temperature</b>	357 K (84°C)

Adisa has two small mining outposts located at the edge of its volcanic plains; both are mining exposed veins of rare ores. The mines on Adisa are difficult but very rich. The miners are all technically employees of Horizons Unlimited (HU) drawn from many Tribes on Katringa. Recently the workers formed a union and are fighting for improved working conditions. Work actions are common, although so far the violence has been limited. Like the miners on Eniola, the workers are allowed to return to Katringa for one week out of every four.

The low law level at the mines on Adisa is due to the current level of unrest; most management personnel openly wear small arms and light body armour, fearing for their safety, although no actual harm has come to any HU employee yet.

## AYO IV: KATRINGA

**UWP:** B4A1586-A Ni G

Katringa is a small rocky planet, approximately the same radius as the planet Mars in the Sol system. Katringa is the mainworld of the system and is described in more detail (along with its moon, Temitope) starting on *11 SB1*.

### OLUFEMI AND THE OUTER ASTEROIDS

Katringa marks the outer edge of Ayo's planetary system, but beyond its orbit lie the Outer Asteroids. This diffuse belt consists of asteroids that were scattered outwards during the inward migration of Accra and Yendi, as well as cometary debris leftover from the system's formation.

At least 14 small bodies over 100 km in radius are known to exist in the outer system, residing in inclined, eccentric orbits between 7 and 20 AU. Formally speaking, these are neither planets nor dwarf planets – they are all large asteroids, and none have permanent settlements. The orbits of some of these larger bodies cross Katringa's orbit, but there appears to be no risk of collision in the near future.

Thousands of asteroids and comets are believed to orbit in the outer system, but most are less than a kilometre in radius and have not been catalogued. It is possible that some of these smaller objects may impact Katringa or the other planets within the next few thousand years.

While most of the miners in the Katringa system exploit the Idowa Belt, some recognise the value of the volatiles and hydrocarbons to be found among the Outer Asteroids; another advantage is that bulky Heat and Radiation Shielding is not required at these distances from Ayo. These "Ice Miners" are a more insular, self-sufficient group than the miners of the Idowa Belt, since they are much more isolated in the outer system.

Olufemi is the largest of these scattered asteroids, and is described below; the other large asteroids are between approximately 100 and 200 km in radius.

### OLUFEMI

**UWP:** ES00000-0 (DS00131-B)

<b>Orbital Distance</b>	17.617 AU
<b>Orbital Eccentricity</b>	0.179
<b>Perihelion</b>	14.467 AU
<b>Aphelion</b>	20.767 AU
<b>Orbital period</b>	49.66 years
<b>Radius</b>	392 km
<b>Density</b>	0.331 Earth
<b>Mass</b>	0.00008 Earths
<b>Gravity</b>	0.0204 g
<b>Axial tilt</b>	67°
<b>Magnetic field</b>	None
<b>Atmosphere</b>	None
<b>Mean temperature</b>	113 K (-160°C)
<b>Rotation period</b>	6.2 hours

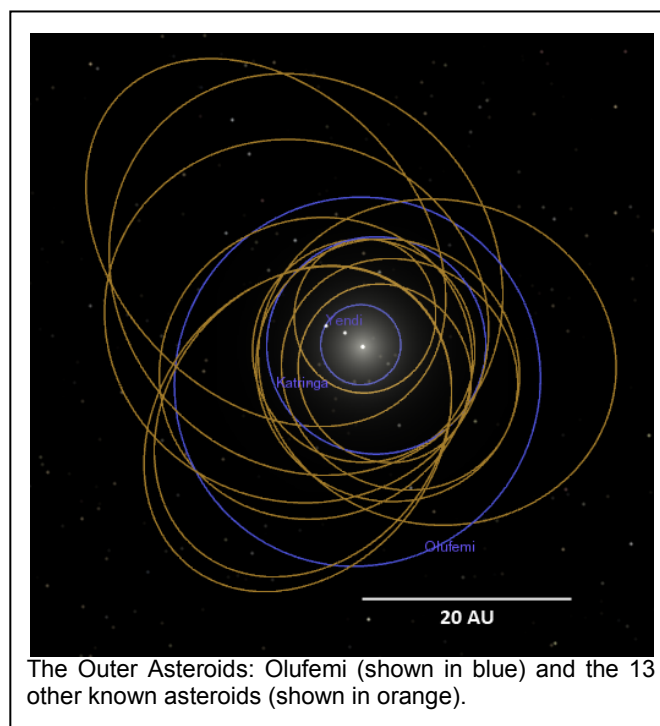
Olufemi is an ice-rich body known for occasional comet-like outgassing as it passes through its perihelion. The only reason it even has an official name is because the first survey team that initially surveyed the system landed there to take on fuel. The remains of the abandoned refuelling base are still

present, although common belief is that it has not been occupied for over three hundred years.

Unbeknownst to the authorities in the system, pirates have recently moved in to the abandoned Olufemi outpost and are using it as a staging area from which to attack nearby systems; however, they have been very careful to not attack any ships in the Katringa system. Occasionally they masquerade as Free Traders and visit Katringa in order to sell their stolen goods, but so far nobody has suspected their true nature. The pirates have been very careful to treat the locals very well and some of them are even well-liked around the starport, but they will become hostile if they are discovered. The UWP in parentheses represents the actual social data for the pirate base.

### MAJOR OUTER ASTEROIDS

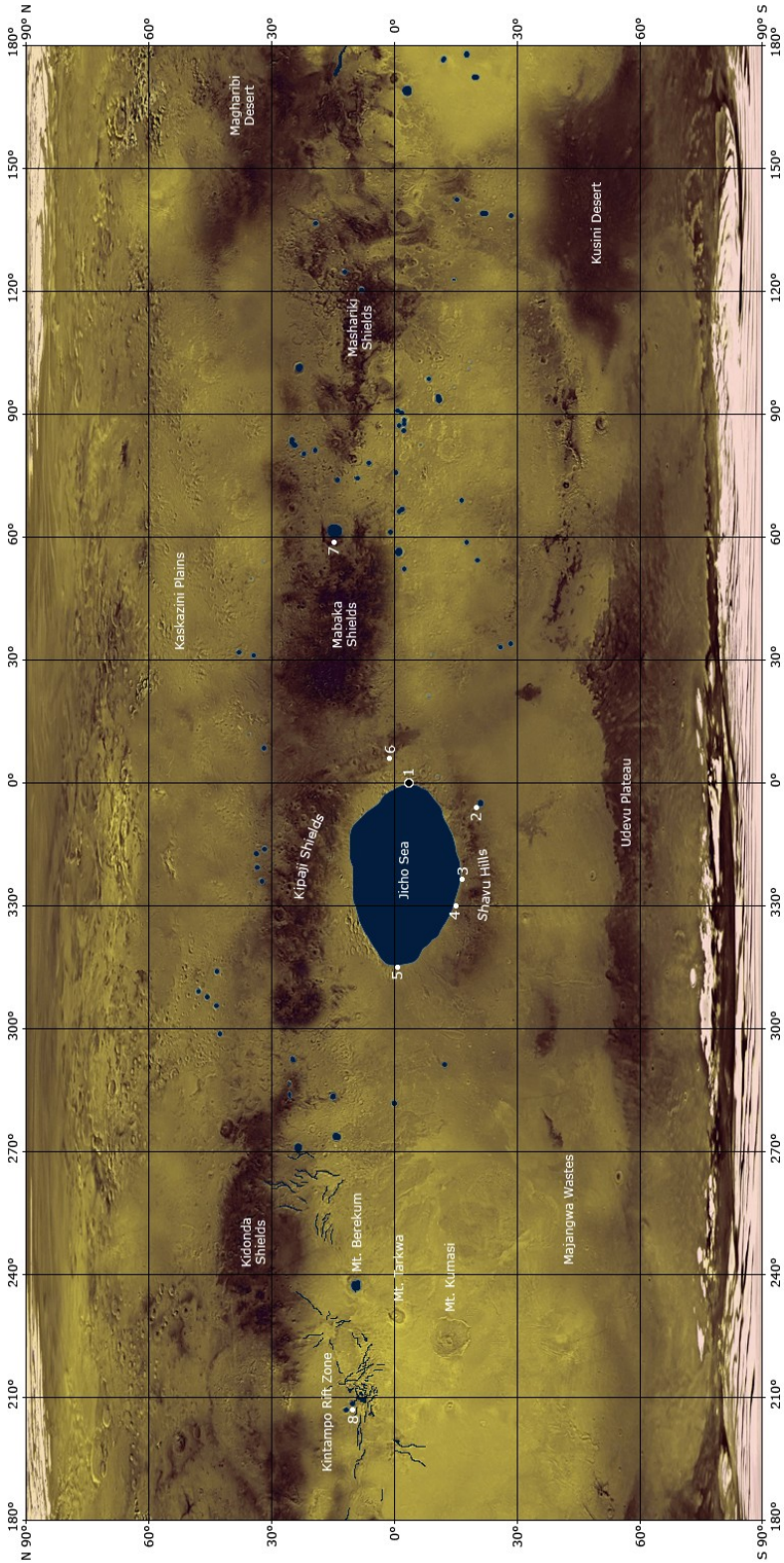
AU	Eccentricity	Radius
7.293	0.394	167 km
8.823	0.396	122 km
10.562	0.045	95 km
11.537	0.387	187 km
12.671	0.263	145 km
14.972	0.326	138 km
15.749	0.573	191 km
16.506	0.598	103 km
17.246	0.437	166 km
18.412	0.368	178 km
19.668	0.681	152 km
19.985	0.433	118 km



The Outer Asteroids: Olufemi (shown in blue) and the 13 other known asteroids (shown in orange).

# KATRINGA WORLD MAP

## KATRINGA WORLD MAP

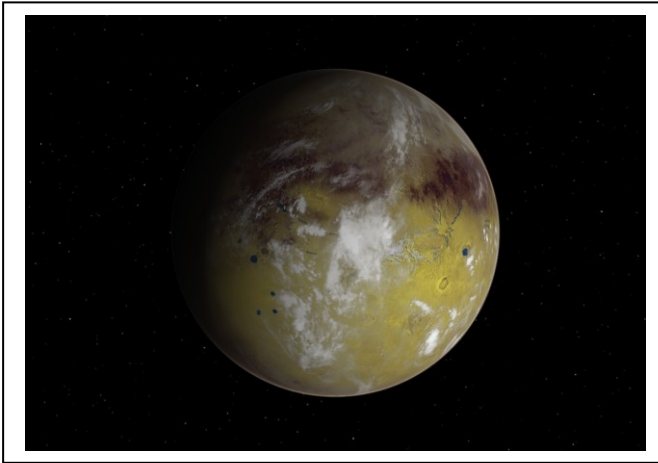


- HABITATS:** 1. Ashanti (Capital) 2. Bassar 3. Sunyani 4. Ulongolo  
5. Kunitama 6. Cambi 7. Jaman 8. Lawra

(Lakes and Seas are shown ice-free for clarity)



# KATRINGA



## AYO IV: KATRINGA

UWP: B4A1586-A

<b>Semi-major Axis</b>	10.363 AU
<b>Orbital Eccentricity</b>	0.129
<b>Perihelion</b>	9.026 AU
<b>Aphelion</b>	11.7 AU
<b>Orbital period</b>	22.4 years
<b>Radius</b>	3324 km
<b>Density</b>	0.956 Earth
<b>Mass</b>	0.136 Earths
<b>Surface gravity</b>	0.499 g
<b>Axial tilt</b>	10°
<b>Magnetic field</b>	Yes (global, earth-like)
<b>Atmospheric pressure at mean surface level</b>	0.83 atms
<b>Atmospheric composition (major)</b>	92% CO <sub>2</sub> , 8% N <sub>2</sub> .
<b>Perihelion temp at mid-latitudes</b>	273 K (0°C)
<b>Mean temperature at mid-latitudes</b>	254 K (-19°C)
<b>Aphelion temp at mid-latitudes</b>	239 K (-34°C)
<b>Rotation period</b>	8.7 hours

Katringa is the third planet of Ayo, with a semi-major axis comparable to that of Saturn around Sol. Despite the greater orbital distance, Katringa skirts the outermost edge of the star's current habitable zone and at perihelion is warm enough to retain liquid water on the surface at its equatorial latitudes. It is the only rocky planet in the system, and the largest rocky object in the system (slightly larger than Accra's moon Garu).

## INTERNAL STRUCTURE

Katringa's internal structure is a mystery for the local planetologists - it is rather dense for an object in the middle zone, with a relatively large metallic core that takes up about 83% of its radius. The current consensus is that the planet started to form in the more metal-rich zones closer to Ayo, but was forced into a wider orbit by the passage of the inwardly migrating gas giants and finished its formation in the sparser, more volatile-rich regions of the protostellar nebula.

Seismic studies have revealed that Katringa has a solid inner core and a molten outer core – the compositional convection currents in the core and the rapid planetary rotation rate combine to give Katringa a powerful magnetic field for a planet of its size. As a result, the planet has strong radiation belts extending out to around seven planetary radii, and aurorae are usually very spectacular in both the northern and southern hemispheres.

## SURFACE GEOLOGY

Katringa's large core and thin mantle influence its surface geology; compressional fault scarps generated by stresses due to mantle convection can be found at high latitudes in the northern and southern hemispheres of the planet. Three broad mantle plumes are known to be responsible for the active geology in the western hemisphere of the planet at the Kidonda Shields, Kintampo Rift Zone, and the large volcanoes to the south. In lower latitudes, a wide belt of volcanic activity crosses the northern hemisphere from 30°N to the equator. The significant heat generated in Katringa's interior drives active volcanism on the surface, which manifests in a variety of ways, ranging from fissures and hydrothermal vents at the small scale to 'shield fields' (containing many small volcanic cones) and hotspot volcanoes at the large scale.

Katringa is not as densely cratered as the rocky worlds in Sol's system, since the Ayo system did not suffer a "Late Heavy Bombardment" period. However, one large impact basin on the equator contains the Jicho Sea, where most of the planet's inventory of surface water is located.

Katringa's surface is largely basaltic in composition. Millions of years of weathering and erosion have created a layer of iron oxide-rich dust that gives the planet its characteristic colouration. Finer yellow dust covers the extensive plains of the planet, coarser brown sand is found in the deserts, and the exposed rocky highlands and the volcanic landscape of the shield fields are darker still.

Katringa spends about five years of its 22 year orbit within the habitable zone. Katringa is a cold desert planet for most of its orbit, with its surface water frozen over and the rest locked up as permafrost just below the planet's surface. However, during the summer the middle and lower latitudes become warm enough for the ice and permafrost to melt.

The main terrain types in the mid-latitudes are determined by the local geology. In some areas, water collects in large impact craters to form large lakes that freeze again in winter. In other areas, the landscape is covered by *thermokarst* terrain, filled with small seasonal lakes created by thawing permafrost. A chaotic mess of gullies, canyons and badlands can be found elsewhere, created by water erupting from melting ice pockets just below the surface.

## ATMOSPHERE & CLIMATE

Katringa's atmosphere is significant, and the pressure at the mean surface datum is 0.83 times that of Earth's atmosphere at sea level. The atmosphere is composed mostly of carbon dioxide and nitrogen, with trace amounts of other gases. It is thick enough to cause significant weathering, erosion and deposition, and most of the planet's plains are covered in vast dune fields and wind-sculpted mesas. Most of the Katringa's water is locked up in ice in the surface or in the lakes – the atmosphere is very dry, and precipitation is very rare and only occurs in certain locations in the summer. Huge dust storms are also common, particularly in the late spring and late autumn in the planet's plains and deserts, and can cause significant abrasive damage; occasionally, the dust storms become so widespread that they can cover the entire planet in a blanket of sand and dust.

Temperatures on Katringa only rise above freezing in the equatorial regions during the summer, and peak around 10°C (50°F) during that season. The summer is generally defined as the part of Katringa's orbit when the lakes are liquid, and usually lasts about six standard years.

When the planet moves to around 9.7 AU from Ayo, the equatorial temperatures have dropped enough for the lakes there to start to freeze. The autumn season is defined as the period during which the lakes freeze over and usually lasts about three standard years (when Katringa is around 10.5 AU from Ayo), at the end of which even the Jicho Sea - the largest body of water on the planet – has frozen over.

The winter season lasts about ten standard years, and during this season the planet is a bitterly cold, frozen desert, and even at the equator the temperature never rises above -10°C (14°F). Winter ends when the frozen equatorial lakes start to melt as the planet approaches perihelion, and spring lasts another three years.

Katringa is currently in its summer season, at 9.11 AU from Ayo, and is moving towards Autumn.

## CALENDAR AND TIME-KEEPING

The short Katringan rotational period and its long orbital period preclude the use of standard 24-hour days and 365 day years. Given the origin of Katringan culture, many of the names for the other units of time used there are African in origin (it should be noted that the singular and plural forms of Katringan time units are the same, even though historically they were different). Standard hours, minutes, and seconds are used as normal to mark short periods of time.

The period when Ayo is above the horizon (from sunrise to sunset) is called a **nuru** ("light"), and the period where Ayo is below the horizon (from sunset to sunrise) is a **giza** ("dark"). The actual duration can vary depending on latitude and season, but on average both are around 4.35 hours long.

A full Katringan rotation period is only 8.7 hours long – this is defined as a **zunguko** ("cycle"), being the time from one sunrise to the next. Obviously, this is identical in length to a consecutive **nuru** and **giza**.

A **siku** ("day") is made up of three consecutive zunguko - one for work ("kazi"), one for rest ("pumzikio"), and one for sleep ("usingizi"). This is functionally equivalent to the standard day used elsewhere, although a siku is slightly longer at 26.1 hours.

A **juma** ("week") is a Katringan week - there are eight siku in a juma, six of which are spent working and two resting. Temitope orbits once every 6.93 zunguko, making it unsuitable for time-keeping.

A **mwaka** ("year") is equal to 47 juma (corresponding to 376 siku and 1128 zunguko). Since they are 408.9 standard days in length, mwaka are used as functional equivalents to standard years for tax calculations and celebrations such as birthdays or anniversaries.

A **mzingo** ("orbit") corresponds to one full orbit of Katringa around Ayo (22.4 standard years). There are 22,570 zunguko in a mzingo – this is divided into 20 full mwaka (for a total of 22,560 zunguko), with the last 10 zunguko being taken up by an end-of-year holiday celebration known as **Mwisho** ("end").

### KATRINGAN TIME UNITS

<b>nuru</b>	(sunrise to sunset)	~ 4.35 hrs
<b>giza</b>	(sunset to sunrise)	~ 4.35 hrs
<b>zunguko</b>	nuru + giza	8.7 hrs
<b>siku</b>	3 zunguko	26.1 hrs
<b>juma</b>	8 siku 24 zunguko	8.7 standard days
<b>mwaka</b>	47 juma 376 siku 1128 zunguko	408.9 standard days
<b>mzingo</b>	20 mwaka + 10 zunguko 940.4 juma 7523.3 siku 22570 zunguko	22.4 standard years

## GEOGRAPHY

**The Jicho Sea:** The most noticeable feature on the planet is the large equatorial Jicho Sea, a 2550 by 1550 km oval body of water that covers 9% of the surface area of the planet (about 12.4 million square kilometres). The sea completely fills an old tectonically-deformed impact basin, and at its centre the seafloor lies nearly four kilometres below the surface (the seafloor is close to the planet's mean surface level). Active volcanic and hydrothermal vents are present at these depths, and primitive microbial life was recently discovered around some of them.

The Jicho Sea is bordered by the darker Kipaji Shields to the north and the Shavu Hills to the south, giving it the appearance of an eye when seen from space. However, even such a large body of water cannot avoid freezing over completely during the long winter.

**Kipaji Shields:** These volcanically active highlands surround the northern border of the Jicho Sea. Steam vents and hydrothermal activity abound in this region, and many miners come from the settlements around the sea to exploit the mineral veins found here.

**Shavu Hills:** The southern boundary of the Jicho Sea is also a highland region but is much less volcanically active than its northern counterpart. However, there is significant tectonic activity in this region, with frequent earthquakes along the radial and concentric faults that criss-cross the hills.

During the summer, atmospheric circulation carries evaporated water from the Jicho Sea and re-deposits it as snow in the Kipaji Shields and the Shavu Hills. Apart from occasional carbon dioxide snowfall during the polar night, this is the only significant precipitation that occurs on Katringa.

**Udevu Plateau:** The Udevu Plateau is an expansive, rocky highland region that has been uplifted over the past few hundred million years. Its northern border is marked by a gigantic, continuous scarp over 5,000 kilometres long, varying between a few hundred metres to three kilometres in height across its length. The Udevu Scarp is a popular location for extreme rock climbers and mountaineers who come from other systems seeking a new challenge.

**Mabaka Shields:** Mabaka Shields is one of the most volcanically active regions on the planet, with new lava flows resurfacing large areas on a daily basis. The permafrost in this region has long since been driven off by the heat from the near-surface magma and lava, leaving behind a dark, rocky desert punctuated by lava tubes, collapsed caverns, and lava fountains. The nearby settlement of Jaman often sends mining expeditions into this region, although the eruptions make the terrain somewhat dangerous.

**Mashariki Shields:** Mashariki Shields is the oldest shield field on Katringa, and the least active; dust has slowly been encroaching into the area, gradually covering up the outlying regions. Long-range mining expeditions sent from Jaman indicate that rich mineral veins are present in the area, and there has been talk of setting up a permanent settlement to mine the region.

**Kidonda Shields:** Another very active shield region, Kidonda Shields lie to the north of the planet's major hotspot volcanoes. Kidonda is colder than the other shield fields since it is located at higher latitudes, and is also higher in altitude as a result of geological uplift; as a result, local temperatures rarely climb above freezing even in the summer. Explosive volcanic activity is more frequent here, as magma directly interacts with ice pockets in the surface. Some minor water-filled rifts can be found on the south-eastern edge of the shields; these most likely formed as a result of the region's uplift.

**Kintampo Rift Zone:** The Kintampo rift zone is another region of active crustal uplift, broken up into a roughly radial pattern of 10 to 50 km wide rifts. The rifts are filled by water all year around, though their surface freezes over during the long winter. The rifts can reach depths of up to three kilometres in places, and many contain active hydrothermal vents at their base. Curiously, a different ecosystem of microbes to that found in the Jicho Sea has been discovered around some of the vents in one of the rifts, and appears to have arisen independently there.

**Deserts:** Deserts on Katringa are large expanses of darker, sandy dune fields. The average prevailing wind speed tends to be lower in these locations, which encourages deposition of larger particles of sand while the smaller dust particles remain in the air.

The southern **Kusini Desert** is a desolate region of frozen sand dunes, locked in place by water trapped between the grains on the ground. In the northernmost parts of the desert during the summer the ice can melt enough to allow some grain mobility, causing dunes to collapse without warning.

The northern **Magharibi Desert** is somewhat warmer, and encroaches on the western part of the Kidonda Shields. In the desert's southernmost extents, the sandy terrain becomes water-logged when the ice melts during the summer, causing hazards for ground vehicles travelling across the region. In winter, the ground becomes solid once more as the temperature drops below freezing.

**Mount Berekum:** Mount Berekum is the northernmost of what the locals refer to as the "Milima Mikuu" - the "Great Mountains" that are Katringa's three large shield volcanoes. All three volcanoes started erupting around 120 million years ago, their activity fuelled by a large mantle plume below the surface.

Unlike the other Great Mountains, Mount Berekum is a long-extinct volcano, with no continuing volcanic or fumarolic activity. The volcano itself is about 300 kilometres across, with a giant caldera in its centre over 160 km in diameter. The highest points on the caldera walls are now about 3,100 metres above mean surface level. The caldera formed about 20 million years ago when the magma chamber under the volcano drained away, causing the structure above to collapse; over time, the caldera gradually filled with groundwater and now contains a huge lake. The inner edge of the caldera is marked by a ring of staggered terraces leading down to the crater lake, the surface of which is located about 100 metres above mean surface level. Like most bodies of water near the equator, the surface of the caldera lake freezes in the winter and melts in the summer. Several Tribes have set up mining camps at Mount Berekum to exploit the valuable mineral deposits in and around the caldera.

**Mount Tarkwa and Mount Kumasi:** Mounts Tarkwa and Kumasi are active volcanoes that are still erupting today. Mount Tarkwa is eight kilometres high, with small calderas at its peak (one of which contains an active lava lake).

Mount Kumasi is the largest volcano on Katringa, covering a roughly circular area that is over 550 km in diameter. Its summit is 14 kilometres above mean surface level, above most of the atmosphere (pressure at the peak is 0.26 atms). While most of the activity at both volcanoes occurs near the summit, lava breakouts and extensive fumarole activity are common on their flanks.

**Madoa Lakes:** The Madoa Lakes are located around the equator between the Mabaka and Mashariki Shields. The entire region is filled with thousands of small bodies of water, ranging from a few tens of metres wide to around a hundred kilometres across (only the largest are shown on the global map). The smaller lakes are *thermokarst lakes*, filling depressions caused by the melting of the ground ice during the summer; the larger lakes are impact craters filled by groundwater. During the summer, the terrain is quite water-logged and difficult to travel through, though the lakes and ground freeze over during the winter.

**Kaskazini Plains and Majangwa Wastes:** These regions cover the high latitudes of Katringa (Kaskazini in the north, Majangwa in the south), and are frozen for the entire planetary year. They are trackless deserts, covered by vast fields of yellow silt and are punctuated only by the odd impact crater or compression ridge. There is little of interest in these plains, and they have only been surveyed from orbit.

**Ice Caps:** Katringa also has significant ice caps at both poles that shrink and grow with the seasons. The icecaps are made of water ice during the polar summer, but the temperature can plummet to around -85°C (-121°F) during the long, lightless polar winter; low enough for carbon dioxide to freeze out of the atmosphere and fall as snow there. While the summer icecaps rarely extend beyond 80° latitude, the winter icecap has been known to extend down to 60° latitude. Vast reservoirs of water ice are also locked in the ground as permafrost over much of the rest of the planet down to the low latitudes.

## NATIVE LIFE

Life has evolved on Katringa, although it is very primitive and is exclusively comprised of extremophile microbes. All of this life is found around vents at the base of the Jicho Sea and in the water-filled rifts of Kintampo. Unusually for such a young world, life appears to have evolved independently in these two regions. Xenobiologists have begun to study the native life, but nothing of commercial interest has been discovered yet. No life is found on the surface, since the UV emitted by Ayo completely destroys any exposed organic molecules.

## TEMITOPE

**UWP:** BS00468-A

<b>Orbital Distance</b>	40,100 km (12.1 radii)
<b>Orbital Eccentricity</b>	0.13
<b>Orbital Period</b>	60 hrs 16 mins (tide-locked)
<b>Orbital Inclination</b>	1.61°
<b>Radius</b>	73 x 51 x 49 km (asteroidal)
<b>Density</b>	0.51 Earth

Temitope is the stony asteroidal moon of Katringa, and the location of the shipyards of the system's Class B starport. However, the starport barely qualifies as Class B; it is much more focussed on maintenance and refuelling than in the construction of new vessels (small craft can be built there if necessary, but the construction of new spacecraft and starships would require a major restructuring of the facility).

The majority of the shipyard is devoted to ship maintenance and the installation and replacement of Heat Shielding and Radiation Shielding (see *41 HG* and *42 HG*) on the hulls of the mining ships. All ships operating in the Idowa Belt require both Heat and Radiation Shielding, and all ships operating at or within the orbit of Accra require Heat Shielding.

Berthing costs at the highport are as stated in the TMB except for HU ships, which can dock there for free. Interstellar traders are welcomed here and will find ready cargoes of metals and radioactives for sale. Operational duties of the starport and shipyards are shared by four Tribes, although the entire facility is owned and managed by HU.

The system's highport has only four docking bays available for commercial vessels. Most unstreamlined ships are allocated a parking orbit around Temitope and use either their own small craft or the available shuttle service to reach the highport. There are also regularly scheduled shuttles from the highport to the downport every few hours. At any given time there will be 1d3-1 large freighters (typically owned by Horizons Unlimited) in parking orbits around Temitope; these transport precious ores and radioactive materials from the Idowa Belt to the hungry factories on nearby industrial worlds. In addition to these large freighters, there will be 1d6-1 other jump capable ships in and around Temitope, typically free traders or subsidized merchants in the 100 to 1000 dton range.

The shipyards at the highport have separate maintenance bays in which to simultaneously work on up to ten ships of up to 1000 dtons each. These bays are also used to repair and install Heat Shielding and Radiation Shielding; the miners are usually charged a discounted rate for this, with outsiders being charged full price. There are usually 1d6+4 ships undergoing some kind of maintenance at any given time.

The starport authority also maintains some System Defence Boats and rescue vessels. There are five SDBs in the system, with three out on patrol at any one time. None of the SDBs or rescue vessels are jump capable.

The government has fourteen subsidised merchants under contract, and one of them makes port about once every standard month.

The University of Ashanti runs an observatory on Temitope dedicated to searching for and tracking any asteroids that might impact Katringa. Currently it has identified over fifty large (kilometre-scale) objects in the outer system on Katringa-crossing orbits that could potentially cause significant environmental damage if they strike the planet. Four hundred-metre scale asteroids have already been diverted from potential impacts in the colony's three hundred year history, and it is likely that many more are out there waiting to be discovered.

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# ***KATRINGAN SOCIETY***

## **COLONISATION HISTORY**

The Katringa system was settled about three hundred standard years ago. It is a licensed colony of Horizons Unlimited (HU), a large corporation that specialises in exploiting planetary systems that do not have habitable worlds. Workers were brought in primarily to exploit the very rich (and extremely hostile) Idowa Belt in the inner system.

Katringa itself was selected as the site of the main colony and base of operations because the Idowa Belt is too close to the star for jump drives to operate. Over time, the colony has grown and branched out from being a dedicated mining facility.

About 300 spacecraft currently dive into the Idowa belt for a few weeks at a time to prospect or mine the asteroids there. Originally the Tribes leased their mining ships from HU, but over the generations the Tribes gradually acquired ownership of their spaceships. Today, only about 30% of the ships are still leased from HU. Some Tribes have been granted leases to mineral-rich areas of Katringa itself and spend their time mining on the planet and never venture into the Idowa Belt. There is a slight schism between the "Grounders" and the "Spacers", but the Tribes remain united in their efforts to limit the control of the company.

## **POPULATION**

The current population of Katringa is 127,000; most of the population is made up of Terran humans, and aliens are rare. Horizons Unlimited initially hired approximately twenty-thousand workers to mine the Idowa Belt, and most of them came from central Africa on Old Earth. These workers were brought in as contract labour, and not as HU employees; this sometimes subtle distinction shaped the development of the colony in the centuries to come. Most of Katringa's current population is still of African descent, and the local culture and language is strongly influenced by their African roots.

## **CULTURE**

The system's population is organised into large groups called "Tribes", consisting of several hundred to a few thousand members. Each Tribe in turn consists of many genetic families, but the border between "family" and "Tribe" is somewhat blurry; for example, children are often raised and educated (and the elderly are looked after) by the extended family of the Tribe beyond direct genetic relatives. Currently, there are 84 Tribes in the Katringa system.

While immigration rates are low, newcomers are warmly welcomed; however, they are expected to integrate into the dominant culture, and insular communities are frowned upon. Immigrants must apply to live in a settlement, and once accepted they are required to join a Tribe of their choosing; usually they will join one of the dominant Tribes in their settlement. Special naming ceremonies are held for immigrants to formally bring them into the tribe.

Horizons Unlimited employees that are not members of one of the Tribes make up less than ten percent of the population. Most of these employees are assigned to Katringa for terms of four standard years; although many of them opt to extend their contract and stay longer. Many of these employees and

their children have married into the Tribes through the years. Despite the best efforts of the local population, there are some company employees who choose not to integrate into the Tribes, and these individuals usually stay in separate areas of the settlements and tend not to mingle with the Tribes socially.

Tribal members like to spend a lot of time together. Most evening meals are communal with several families or even the entire Tribe present. There is usually singing and dancing. Musical styles tend toward chanting and drum based music, but other types of music are also found. Off-world music is popular as well and a visitor that is willing to stand before the Tribe and sing a song will be welcomed with open arms.

Courtesy is very important to the Tribes. Each person is treated with utmost respect whenever possible and to show disrespect is one of the greatest social sins. Hugging is the common greeting, even among strangers, but kissing is not socially allowed in public, even between married couples.

While there are some political differences between the Tribes, Katringan culture is actually quite homogenous and is heavily influenced by its African origins. While English is commonly spoken and used with outsiders, among themselves most native Katringans speak a mixed language evolved from the original African languages of their ancestors (including Swahili, Zulu, Twi and Fante) and English.

One of the oldest traditions of Katringan society is that people do not marry within their own Tribe. Conservative Tribes still vigorously preserve this tradition, but some Tribes are starting to allow this practice, as long as the partners are not from the same genetic family. There are many social activities designed to ensure that the younger, unmarried members of the Tribes are allowed opportunities to mingle. When a couple marries, the male joins the Tribe of his wife, taking his belongings with him. Lineage is tracked through the mother, with the oldest child usually inheriting regardless of sex. Same-sex marriages are also allowed; in such cases, the younger partner joins the Tribe of the elder one.

Many Katringans are religious. The three major religions practised on Katringa are Christianity, Islam, and ancestor worship. About 50% of the population are Christians (mostly Protestant), 30% are Muslim (mostly Akan Sunni), 10% are ancestor worshippers (mostly in the Akan Tribe), and 10% are atheist or agnostic, or another religion.

Major religious holidays such as Christmas and Ramadan are celebrated by their respective ethnic groups, once every mwaka. They are held on the siku corresponding to the day of their Terran equivalent (e.g. Christmas is held on the 359<sup>th</sup> siku of the mwaka); 'roaming' holidays such as Easter and Ramadan are held on fixed days instead. Other holidays include Landing Day (celebrating the establishment of the first settlement on Katringa, and held on the 100<sup>th</sup> siku of the mwaka) and the ten zunguko long Mwisho celebration held at the end of each complete orbit of Katringa around Ayo. Employees can take also vacation time every mwaka, lasting between two and five juma depending on the length of their employment.



While birthdays are marked every mwaka, the passage of a mzingo since birth is a particularly special event for an individual, and marks the passage of specific cycles of their life. This event lasts a full juma and is known as **Sherehe** (pronounced 'share-a-hay', meaning "celebration"), and it is so important that the celebrant is completely forbidden to work for the duration of his or her Sherehe (much to the chagrin of Horizons Unlimited).

A person's first Sherehe is marked by a coming of age ceremony celebrating entry into adulthood (at an age of 22.4 standard years) and the Tribe, and in some Tribes marriages are also arranged at this time. Prior to their first Sherehe, Katringans have a first name and a family name only. After their first Sherehe, they are allowed to include their Tribe in their name; the name of their Tribe is attached to the end of their family name (e.g. when Louis Makabe becomes part of the Ewe Tribe, he will be known as Louis Makabe-Ewe). Adults who are not Tribe-members (e.g. off-worlders) will not have the tribal name suffix.

Their second Sherehe (at 44.8 standard years) marks middle-age, and if they are not married by this point then spouses are often found for them at this time.

The third Sherehe marks retirement (at 67.2 standard years). Employees are not actually *required* to stop working when they reach this age, and can retire at any time between this and their next Sherehe (when it does become mandatory); in practice though, people usually retire close to their third Sherehe.

Finally, the fourth Sherehe (if the celebrant reaches that age, being 89.6 earth years old by this point) is a celebration of their long life and old age. The natural lifespan of Katringans is usually 80-90 standard years, with a few long-lived ones reaching 100 - thus, a fourth mzingo is a celebration indeed.

The vast majority of Katringans find the use of anagathics to be abhorrent and neither use them nor tolerate their use, seeing them as an unnatural extension of life. As a result, no Katringan has ever reached a fifth Sherehe, and it is unlikely that such an event would be treated as a celebration.

Daily routine is based around the siku, which is divided into three zunguko of work ("kazi"), rest ("pumzikio"), and sleep ("usingizi"). Most businesses operate in the kazi period, during which employees are paid normal wages. Most employees go home at the start of pumzikio, and spend this period socialising with family and friends, and enjoying other recreational activities (bars and restaurants are often open during this period). Katringans usually aim to get around 8 hours of sleep, retiring near the end of pumzikio and waking up near the end of usingizi in order to have time to prepare and eat breakfast and travel at work for the start of the kazi. In practice, these activities are not that different from those in the normal 24-hour daily cycle.

Katringan employment law states that employees cannot work for more than two consecutive zunguko, and that they must be paid overtime for work done during the second zunguko. While most Katringans work primarily during the kazi, shift work is common in which they work during pumzikio or usingizi instead.

Education is free to all citizens of Katringa until the end of secondary school. Many technical academies exist for specialized training and the small University of Ashanti is well regarded within the subsector for higher academic learning, especially in the fields of engineering and science. The

government also runs a scholarship program where high aptitude students can travel off-world for a university education and then return to Katringa for four mwaka of community service; over one thousand students are currently taking advantage of this program, providing Katringa with a steady supply of new doctors, nurses and scientists.

Katringa does maintain a small network of communication satellites, but these are used to contact field expeditions and the remote settlements of Lawra and Jaman. Around the Jicho Sea, radio and wireless communication towers and cables are used to connect the settlements. All of the settlements have their internal communication networks, and locals can freely access the local internet, although some sites do charge for access to their content. Satellite communications to the remote communities and mining camps must be paid for on use, however. There are over two hundred channels of entertainment and news available in the Jicho Sea region, and most of the Tribes also run their own channels targeted at their people.

Sporting events are popular amongst the Tribes and with the HU employees. There are two sports that are currently very popular: *Gravball* and *Wintopi*. Gravball is a fairly violent game, similar to rugby, played by teams of nine players in a zero-gravity environment; as such, it is not played on Katringa itself, although is popular on the entertainment networks there. Gravball teams are fielded by most of the Tribes and there are several teams fielded by the HU employees.

Wintopi is played in an open area (in gravity) and is similar to cricket, but uses oval balls rather than spherical balls. Wintopi is almost entirely a tribal sport, with little support from the HU employees.

Other sports played elsewhere in the subsector are also supported by the locals. Katringa fields a "national" team to compete in some interstellar sporting events, although their record is usually embarrassingly poor.

## APPEARANCE

Most Katringans are black or brown-skinned, like the original settlers from whom they are descended. Interbreeding with immigrants over the past three centuries has expanded the gene pool, introducing some variation in skin, hair and eye colour. However, the most distinctive visible characteristics of Katringans are personal decorations such as Tribal markings, tattoos, and clothing styles, which vary greatly between the Tribes.

While relaxing, Katringans wear robes made of synthetic fabric, marked with geometric patterns and stylised animal prints. The colours tend to be bright, although darker browns and greens are currently making a comeback. Each Tribe's clothing has unique patterns that distinguish them, and individuals tend to add their own unique twists. There are also many patterns and designs that are shared between the Tribes; it can be very difficult for an outsider to distinguish between the subtle differences in pattern that identify the various Tribes, although the locals have no such difficulty.

Men and women wear similar clothing, although the current fashion in most Tribes is for women to wear elaborate, hand-woven headscarves. Some men still wear wide-brimmed hats of felt-like material, though this is now considered to be old-fashioned.

The “casualwear” described above is not worn aboard a spaceship or while working out in the field; in these situations, most Tribe members switch to a more practical jumpsuit or shirt and utility pants. However, these are also distinctively marked with tribal patterns, and even Katringan environment suits, spacecraft, and vehicles have these markings.

## SETTLEMENTS

About 70,000 people reside in the capital city Ashanti (on the eastern shore of the Jicho Sea). About 50,000 live in the other major settlements around the coast of the Jicho Sea, and the remainder reside in the Jaman and Lawra settlements elsewhere on Katringa. Temporary mining camps and survey expeditions are often despatched into the Katringan plains and shield fields, and a small permanent settlement at Mount Berekum may be established in the near future.

Most of the settlements are built around mines that exploit subterranean ice and mineral deposits, and are located within 30° of the equator where ice melts in the summer and the temperatures do not drop too far during the winter. Katringa has a surface starport located just outside Ashanti, and has a highport located on its asteroidal moon Temitope.

Settlements are constructed from standard sealed cylindrical and box-shaped units – as the settlement expands, more units are added, including small domes and wide hangar-like structures to containing parks, markets, and other large enclosed spaces. Hydroponic centres provide food for the colonists, and as much material as possible is recycled. The habitats are pressurised to 0.85 atmospheres (slightly higher than ambient surface pressure), with a mix of 75% nitrogen and 25% oxygen, and temperature is maintained at a constant twenty-five degrees Celsius.

Ashanti is the largest settlement on the planet, and is the world and system capital and the location of the groundside facilities of the starport. Ashanti is a collection of interconnected habitats covering several square miles of the sea’s eastern shoreline and has expanded greatly from the first settlements built on the planet three centuries earlier.

## IMPORTANT TRIBES

**Akan:** The Akan Tribe are the largest, most powerful and richest Tribe in the system. The Akan number over ten thousand members and are actively involved in almost every field of influence. They have the largest fleet of asteroid mining ships - 47 vessels, all fully owned by the Tribe - and over two thousand of their members are directly involved in governmental operations, including civil service and settlement maintenance. The Akan are stereotypically described as arrogant and self-serving. They live primarily in Ashanti, but have large holdings in several smaller settlements around the Jochi Sea. The Akan have held a seat on the Board of Directors for almost six full mzingo, and work very hard to maintain their position of leadership amongst the Tribes. The Akan Blasters are perennial winners of the Director’s Cup in Gravball and the Tribal Cup in Wintopi.

**Ewe** (pronounced “Eh-way”): The second Tribe on the Board of Directors, the Ewe Tribe are actually a relatively small Tribe, consisting of only fifteen hundred people. They gained their Director’s seat two mzingo ago as a compromise when the Council of Chiefs was deadlocked for almost a full mwaka. The Ewe leaders have used their position to improve the lives of the average worker and they are very popular with the smaller Tribes. The Ewe Tribe is involved in asteroid mining, controlling twenty ships, and own several very profitable

mines. Ewe tribal members are usually dark-skinned, with blue or green eyes.

**Manahoa:** The Manahoa Tribe number just under five thousand people, and are one of the larger Tribes in the system. They are heavily involved in asteroid mining and also are one of the four Tribes that operate the Temitope Highport, concentrating on starport operations and administration. The leaders of the Manahoa Tribe barely lost a bid to replace the Ewe Tribe on the Board of Directors in the last council election, and have been quietly campaigning behind the scenes in preparation for the next one. The Manahoa are notorious for showing favouritism in scheduling ship maintenance at the Temitope starport, with several Tribes feeling they are constantly receiving unfavourable slots and service.

**Zephraim:** The Zephraim Tribe is one of the “grunder” Tribes that are not involved in mining the Idowa Belt; instead, this Tribe has chosen to exploit the resources of Katringa itself. Based at the Lawra settlement, the Zephraim are strongly focussed on science and engineering, and have a dozen exploratory outposts scattered across the planet; they are also mapping and exploiting the mineral resources at Mount Berekum. They are one of the few Tribes investigating the planet’s native life. Members of the Zephraim Tribe typically have lighter hair than other Tribes and there are even a few blonde-headed people in their Tribe.

**Tain:** The Tain Tribe are one of the smallest Tribes on Katringa consisting of only four hundred people. They lease three mining ships from HU, and they also operate a company mine from the Jaman settlement. The Tain used to be much larger and more powerful, but an internal power struggle five mzingo ago saw the Tribe split into three parts. The new Tribes - the Tain, the Kintampo and the Cambi - were eventually able to settle most of their differences with each other, but there is still some tension between the three.

**Kumitama:** The Kumitama tribe number about 2,500 people, and dominate the settlement of the same name on the western shore of the Jicho Sea. Tensions are rising within the tribe, as their current chief is old, senile, and has failing health. When he dies, there will be an internal struggle for succession since he has no living heirs, and it is likely that the Tribe will split into two or three smaller Tribes as a result. This has happened before, and there is likely to be some violence as the tribe splits apart.

## GOVERNMENT AND TRIBAL RELATIONS

The relationship between the Tribes and Horizons Unlimited is a complex one. Initially HU controlled every aspect of the colony’s maintenance, but over the past three hundred years the Tribes have grown in power and HU has (sometimes reluctantly) granted them control over most of the colony’s services. Today, the Tribes run the day-to-day operations on Katringa such as law enforcement, administration, and civilian government, while HU retains complete control over the essential services including the financial system, power generation, ore-processing facilities, and the Starport. The settlements’ life support is run by the Tribes, however, as a result of an arrangement made earlier in the colony’s history.

Nevertheless, Horizons Unlimited is still effectively the government of the system. The ruling body of the Katringa system is the Board of Directors, consisting of three HU Administrators, the director of the starport, and two representatives of the Tribes. The Tribes have participated in

the running of the colony since it was established, although in practical terms HU retains almost complete control over the government. The two tribal seats are filled by system-wide elections every five mwaka.

Although the Tribes do not have enough seats to achieve a majority position on the Board, the arrangement does at least allow their voice to be heard, and more often than not HU does take their concerns seriously. Most issues and conflicts can be resolved through negotiation; each group is well aware of the other side's "non-negotiables", and they each know not to pass over that line.

The Akan Tribe, the largest and richest Tribe on the planet, has held a seat on the Board for almost six mzingo. The other seat has been held by several Tribes over that period, and is currently occupied by the Ewe Tribe. In theory, any Tribe can be selected to the Board - in practice however, the increased power wielded by the sitting Tribes makes them difficult to remove from their position. Several Tribes feel that the current method of selecting the tribal representatives is unfair and should be changed, but tradition is strong amongst the tribal leaders. Many Tribes receive very expensive "gifts" in return for their vote during the conclave, resulting in significant resistance against changing the current system.

The government is based in Ashanti, and is divided into Departments that cover different aspects of the colony's administration (e.g. Law, Information, Resources, Essential Services). Governmental services are contracted out to various Tribes that are usually re-negotiated at every election. Daily administrative operations in the Departments are performed by individuals selected from all Tribes based on their expertise, resulting in a relatively efficient bureaucracy.

Some Departments are the exclusive domain of HU and its employees; the most notable is the Corporate Security Department, which investigates any damage against HU property (including ore-processors, HU-owned spacecraft, power distribution, the financial system and the starport) and crimes against or involving HU employees. CorpSec operates above the Tribal law enforcement agencies, and full co-operation is expected from the latter during CorpSec investigations.

The relationship between CorpSec and the Tribe-dominated Department of Law is cordial but professional, and they tend to stay within their jurisdiction. Joint investigations occur when there is reason to believe that an HU employee has committed a crime (or is the victim of a crime), and the legal system that the criminal is tried under depends on whether he is an HU employee or a Tribe member.

While this system of government has generally worked (even if it is somewhat corrupt), some of the more radical Tribes have recently started an underground independence movement. Unhappy with the profit-oriented government and the inertia of the Board, they want HU to be removed from the government and for the Katringa system to become completely independent. Recently, several off-world companies have expressed interest in assisting these Tribes gain their independence, in exchange for favourable treatment by the new government for future mining rights.

Horizons Unlimited is strongly against such independence movements and has taken some draconian measures recently in an attempt to stamp them out, including the hiring of mercenary units to provide extra "security". The Akan have vocally supported the HU administration, as have several other Tribes. Tensions continue to mount and the Katringa

system could be plunged into a full-scale uprising if a peaceful resolution is not found.

## LAW LEVELS

Katringa's law level is listed in interstellar records as Level 9. This rating is only true for carrying and owning weapons. For other areas of law and law enforcement, the following guidelines should be used.

**Weapons:** Law Level 9 - all personal weapons are banned unless a permit is obtained from the government. Off-worlders normally are not granted permits to carry weapons unless they can show a legitimate reason, such as hired mercenaries. Few citizens of Katringa even own a weapon.

**Drugs:** Law Level 7 - all narcotics are banned. Most medicinal drugs require a prescription from a doctor licensed on Katringa. Anagathics (and their use) are also completely illegal and are reviled at a cultural level, though this does not stop some from using them. Off-worlders that need to carry medicinal drugs with them must register them with the government before leaving the Starport and must keep that registration information with them at all times. Some medical drugs are available without a prescription.

**Information:** Law Level 6 - recent news from off-world must be reviewed by the Department of Information before being released to the general public. The Department actually restricts very little information, usually acting to limit news about anti-corporate activity. Expert programs and other forms of AI software must also be reviewed by the Department of Information before being connected to the local internet or distributed for sale. Again, these reviews are cursory and most legitimate software is approved in 4-6 days.

**Technology:** Law Level 5 - items of a Tech Level higher than 11 are restricted. HU limits the sale of any item above TL 10 to ensure locally produced goods are competitive. Designs for TL 11 items can be sold to Katringan companies for local production, provided proper licensing and patent laws are followed. The exception to this rule is those items related to public safety or mining operations; these types of items are allowed up to TL 12.

**Travellers:** Law Level 5 - all citizens of Katringa must obtain off-world visas before leaving the system and all off-worlders must obtain a visa before leaving the extraterritoriality of the Starport. Visas take 1-6 hours to obtain and involve a cursory background check and a small filing fee of Cr. 10 per person; a visa is valid for one mwaka. Off-worlders are required to keep their identification and visas with them at all times while outside the Starport. Several exceptions for visas exist, most notably for HU employees. Access to most parts of Temitope is also allowed without a visa.

**Psionics:** Law Level 9 - restrictions on psionics are enforced. All psionic activity and technology is banned; including the use of a Psi Shield device. Any known psion, regardless of the talent, will not be granted a visa and will not be allowed onto Katringa.

**Contraband:** The most common contraband smuggled onto Katringa is illegal narcotics and holographic projectors (and associated software), although neither is considered a serious problem by local law enforcement. There are persistent rumours that weapons are also being smuggled to certain outlying settlements and sold to groups that are planning to overthrow the government, but so far there has been no evidence to support this claim.

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# ***IMPORTANT PEOPLE***

## **THE BOARD OF DIRECTORS**

### **PRESIDENT – KATRINGA SYSTEM**

#### **Edito Tionele**

Edito Tionele has been the President of the Katringa system for just over three mwaka. Although he is the titular head of Katringa's Board of Directors, he actually has very little control over it. More concerned with lining his own pockets, Tionele is secretly involved in many black market schemes in the system, and has even skimmed money that should be going to Horizons Unlimited. He is only really interested in maintaining the status quo that will allow him to remain in power and continue his illicit money-making schemes. He prefers to let the rest of the Board argue over issues before he makes whatever decision is best for his own corrupt interests rather than for the benefit of the company or its employees.

Tionele has an ally in Mattia Riping, the Director of Starport Operations; together they are cooking the books even more than the rest of the Board realize and transferring funds to their own personal accounts.

Tionele is a short and balding man in his late fifties. He likes the ladies and uses his position of power to get women to sleep with him. He is married and his wife is also on Katringa, but she appears to be blind to her husband's indiscretions as long as she can be the socialite that she wants to be. He has three adult children, pursuing their own careers in other parts of the subsector.

### **DIRECTOR OF OPERATIONS – KATRINGA PLANET**

#### **Musta Flamaray**

Musta Flamaray is the newest member of the Board of Directors, having recently been promoted by HU to Director of Planetary Operations from his previous position as Administrator of the Ashanti settlement. While officially he was promoted because of his skills and abilities, Flamaray has a secret mandate from the Senior Directors of HU to find out how deep the corruption on the Board really is, and to take action against it. Flamaray still has many connections to the HU employees in Ashanti and his decisions tend to favour Ashanti at the expense of the other settlements.

Flamaray has a well-earned reputation of being a highly efficient (some would say "ruthless") administrator; rumours are circulating that it was he who decided to bring in the Red Scorpion mercenaries to deal with the unrest in the system. However, these rumours are untrue – the mercenaries were actually hired by Edito Tionele, who is planning to use them to protect his position, regardless of the cost.

Flamaray is a very average looking, middle-aged man with dark skin and non-descript brown hair and eyes. He is married to a young woman in her early twenties, and they have no children yet.

### **DIRECTOR OF FINANCE – KATRINGA SYSTEM**

#### **Olivar Ceptifor**

As the Director of Finance for the Katringa system, Olivar Ceptifor is in the unique position to cook the books and skim the most profits. He has held his position as the Director of Finance for eight mwaka, having worked his way up through the ranks on Katringa. Ceptifor has lived in the Katringa system for his entire adult life, rarely travelling off world; he hasn't left the system since his early twenties. He is a few mwaka away from retiring at his third Sherehe, but is planning to skim a few more million credits before then.

Ceptifor is a very good accountant and has done a great job of hiding both his own under-handed dealings and that of the rest of the board. Horizons Unlimited sends auditors to Katringa every five standard years and so far they have not discovered the redirected revenue.

Ceptifor is a very tall and thin man who walks with a limp, the result of an accident in his youth. He is addicted to prescription pain killers which he originally took while recovering from his injury. He has very white hair and bushy eyebrows, and has a very effeminate manner. His wife died of natural causes about three mwaka ago; they had no children.

### **DIRECTOR OF OPERATIONS – KATRINGA STARPORT**

#### **Mattia Riping**

Mattia Riping runs the Starport operations for Horizons Unlimited. She actually hates space travel and rarely goes to the highport, preferring to stay at the downport. She has risen to her current position due to cronyism and backroom deals; she is not really competent in her job and relies heavily on her subordinates to keep things running smoothly.

Riping is a tall woman with striking blonde hair and green eyes. She is in her early fifties, but thanks to her secret use of illegal anagathics, she looks like she is in her early thirties. She is married to a member of the Akan tribe but has not gone through the acceptance ritual, and they have two children, both teenagers. Riping is very cunning and manipulative, and plays company politics ruthlessly. She is working to get a position in a more important system and does not consider Katringa her home, even though her husband is from here.

### **CHIEF OF THE AKAN TRIBE**

#### **Isoka Zuberi-Akan**

Isoka Zuberi-Akan has been chief of the Akan tribe for almost a full mzingo and has been on the Board of Directors since he became chief. He is as thoroughly corrupt as his father and predecessor were, taking bribes from many other tribes and basing all of his Board decisions on who paid him the most. Zuberi-Akan, Riping, Tionele and Ceptifor form the major power block within the board and are the most corrupt.

Zuberi-Akan is very tall with dark skin, hair and eyes. He is very handsome, thanks to plastic surgery, and very vain. He always speaks in a manner that ensures that everyone listening knows how important he is and how much power he wields. He is in his late fifties and has been trying to get Riping to share her source for anagathics; so far to no avail.

### **CHIEF OF THE EWE TRIBE**

#### **Afia Lungile-Ewe**

Afia Lungile-Ewe is the most honest member of the board. While she still accepts gifts and tokens of appreciation, she isn't truly corrupt. She has been on the board for just over six mwaka (when she became chief of the Ewe tribe) and she knows how corrupt the rest of the board is. Always the voice of moderation and common sense, she is often overridden by the other board members.

Lungile-Ewe is an attractive woman of average height with mahogany coloured skin, brown hair and blue eyes. She is in her early forties, and is very charismatic with a hearty laugh. She is married and has one small child.

### **OTHER IMPORTANT FIGURES**

#### **ADMINISTRATOR – IDOWA BELT**

##### **Brava Czeniniski**

Brava Czeniniski spends most of her time at Idowa Prime. She is a smart and dedicated businesswoman who has only been in the Katringa system for a couple of mwaka. Excluding Musta Flamaray, she is the highest ranking manager in Horizons Unlimited who is not corrupt, and is a company woman through and through. She is also very ambitious and is working to get a position on the Board of Directors. Czeniniski has been positioning herself as the logical replacement for Mattia Riping as Director of Starport Operations. She is disgusted by the corruption that she sees around her and has made several requests to the subsector offices of Horizons Unlimited for a full investigation. While most of her requests were intercepted by Tionele or Riping, she did eventually succeed in getting a message to HU, who responded by promoting Musta Flamaray to the Board to investigate her claims.

Czeniniski is a very short, energetic woman with blonde hair and hazel eyes, and is constantly in motion. She is in her mid thirties and is married but has no children.

#### **RED SCORPION MERCENARY CAPTAIN**

##### **Chonglin Shang**

Chonglin Shang is a former planetary army officer who has been a mercenary for the last ten standard years. He has a reputation for getting the job done, no matter what the cost. His company of mercenaries was hired by the Board of Directors to quell the unrest that is flaring up in several settlements on Katringa and elsewhere in the system in recent mwaka. He has commanded a company of 120 mercenaries called the Red Scorpions for just over four standard years.

Shang is a short man with Asian features. He is in his late thirties and has never been married. He is very quiet and soft-spoken, but when he does speak, those around him listen. He is a student of war and has many books on military strategy and tactics.

#### **MANAGER – ADISA OPERATIONS**

##### **Stenalue Offido**

Stenalue Offido is the Manager of Operations for the Adisa mining outpost. He has been struggling with unrest among the miners that have tried to form a union on several occasions and are petitioning the tribes on Katringa for formal acceptance as a new Tribe. Offido has brought in a section of the Red Scorpions mercenary company to maintain order in the mines, but so far he has only used their presence to intimidate the miners into not causing further trouble.

Although he does not show it, Offido is very afraid for his personal safety and has started wearing a sidearm and body armour, even though he has no real skill with a gun. He has also quietly allowed the other HU employees on Adisa to do the same. Offido is a mercurial manager who is quick to anger, but quick to forgive as well. His unstable temperament has not helped the situation on Adisa.

Offido is of mixed human ancestry; he is normal height with long black hair and pale eyes. He is in his early forties and is not ambitious enough to receive a promotion before he retires. He has six months left on his assignment in the Katringa system and he cannot wait to get away. He is engaged to someone in another star system and hopes to get married once his current assignment on Katringa is over.

#### **DOCK SUPERVISOR**

##### **Pemala Toniri-Manahoa**

Pemala Toniri-Manahoa is a supervisor of the docks. She can work at either the Highport or the Downport, depending on where the PCs choose to land their ship. She is responsible for two docks and supervises a group of twenty workers that cover all three shifts. While harried, she can be a good contact for anything the PCs might need related to their ship; but if anyone gets on her bad side then things will go missing, paperwork will not be completed, etc. She is very friendly and will invite the PCs to her tribal home to share a meal if they are friendly in return.

Toniri-Manahoa is of average height, but overweight (or "big-boned", as she says). She has dark skin, hair and eyes like most Katringans. Although she is in her mid forties, she has an unusually high voice for a woman her size and she often sounds like a little girl when she talks; but when she is angry her voice drops in pitch and her crew claim that she can be heard all the way to Idowa Prime.

#### **STARPORT BROKER**

##### **Gregg Deluro**

Gregg Deluro is a broker for Horizons Unlimited who is responsible for negotiating speculative cargo deals with non-HU ships. As such, he will be the primary contact for the PCs for any trade they wish to conduct while in the Katringa system. Deluro maintains offices at the downport and at the Temitope highport, and has use of a launch that he uses to move between his two offices when required. Deluro is very good at his job (Broker 3), but he can be bribed (+1 DM on all Bribe attempts). He is also working with the pirates that have moved into the abandoned Olufemi outpost, although he believes they are simply smugglers rather than pirates.

Deluro is skinny and has bright red hair and green eyes. He appears very nervous with lots of little twitches and ticks. He is in his late twenties and is not married, although he is engaged to a girl from the Ewe tribe.

**BELT MINER****Topi Valuati-Akan**

Topi is a typical belt miner. She is a member of the Akan tribe and works for weeks at a time on the mining ships that dive into the Idowa Belt, work a claim, then return to Katringa with their semi-processed ore. She is not a ship captain, just one of the many asteroid miners that are a common encounter just about anywhere in the system. She is not attached to a single mining vessel, and often rotates through several of them over the course of a mwaka.

Valuati-Akan has dark skin and hazel eyes like many of the Akan tribe. She is in her late twenties and is open, warm and friendly, but somewhat naïve. The other members of her crew and tribe try to protect her when they are around. She has a beautiful singing voice and can often be found singing to herself. Her left arm is a slightly lighter colour than the rest of her skin; this is due to an accident that occurred a couple of mwaka earlier, when she lost most of her arm and had it medically regenerated. Although the lower part of her arm looks different, its function is not impaired in any way.

**“BUY-ALL” MERCHANT****Jogo Zodarea-Zephraim**

Jogo Zodarea-Zephraim owns a shop in the Digs at Idowa Prime and claims to be able to “Get Anything the Discerning Customer Might Need”; the unspoken part of that promise is that everything has a price. He is not really a black-marketeer, although he can recommend other people “in the know” to those he trusts. He has contacts just about everywhere in the system and even several out-system contacts. He can indeed get just about anything that is legal for him to buy, given enough time and enough credits.

Zodarea-Zephraim has very dark skin and eyes, but light brown, almost blonde, hair. He has a very loud voice and is always laughing and calling everyone “My Friend”. Under his façade of good cheer there is a very sharp mind and a very good businessman. He is in his early fifties, although he looks older; he has had a hard life.

**RED SCORPION MERCENARY****Corporal Thera Pedineth**

Thera Pedineth is a fire team leader within the Red Scorpion Mercenary Company, commanding a team of four Striker Mercenaries. She has been with the Red Scorpions for three standard years, serving in the planetary army of her home world for eight standard years before that. She is a very competent leader and is on the fast track to make sergeant and to be given command of a section. Pedineth and her team could be part of the Company sent to Adisa for security support, or she could be part of the Company protecting various HU assets in the Ashanti dome, even protecting the headquarters of the Red Scorpions itself.

Pedineth is also one of more level-headed voices within the Red Scorpions. She will use all of her persuasive ability to prevent a fight, but if one starts, she and her team will ensure that they finish it. She loves all kinds of music and can often be found in a bar or club that has live music when she is off duty; she is not a very good singer, but a reasonably good dancer.

Pedineth is in her late twenties, of average height and has dark brown hair and brown eyes. She is from a high gravity planet, so she is stronger than she appears and moves with the fluid grace of a panther. Thera has a well developed “command voice” that she uses when needed; ensuring that those around her at least pay attention to what she says.

**PIRATE/SMUGGLER****Val “Fish Eye” Ficendi**

Val Ficendi is a member of the pirate group that has taken over the outpost on Olufemi, and has become the visible face of that group on Katringa. He was the one who negotiated the current contract with Gregg Deluro (see above). He is a very ruthless man who will do just about anything to move up within the pirate organization. While he has killed before, he does not derive pleasure from killing, unlike many of his comrades. Ficendi does have a very short temper and can easily be provoked into a fight (which he will usually win). He is on Katringa once every couple of standard months with several speculative trade cargoes that have dubious histories and are usually stolen. He and his men spend a lot of credits on Katringa, ensuring that most of the locals like them and might even come to their defence if needed. Should their cover be exposed, Ficendi and his gang will not hesitate to use violence to get away; after this, Katringa would no longer be viewed by them as a “sanctuary system”, and would begin seeing attacks from Val’s pirate gang.

Ficendi is a short man with dark hair and striking blue eyes. He wears an unusually long, full beard; very uncommon amongst spacers. He is in his early thirties and likes to wear clothes with lots of (often clashing) bright colours. He has a hearty laugh that makes his whole body shake. Ficendi got his nickname “Fish Eyes” because he has an uncanny ability to move his eyes independently of each other. While this trick offers him little advantage in a fight (save as a distraction), it is a good bar trick and he uses it to try to impress the ladies.

**SHUTTLE PILOT****Kelson Alle**

Kelson Alle is a shuttle pilot who flies people and cargo between the downport and the highport of Katringa. He typically makes two runs every siku. He is very young and still very excited about his job, not having been employed long enough to have it become a dull routine. He has no desire to pilot a larger ship; he likes piloting interface craft. He is considering joining the Katringan Guard, so that he can work on a System Defence Boat; but has not made a decision yet. Alle has caught the eye of Val Ficendi and he has quietly begun recruiting the young man trying to get him to join his pirate crew. He is a relatively honest person, but he has been taken in by romantic stories of “pirates with a heart of gold” and he just might agree to Ficendi’s offer thinking he could be one of those “good pirates”. Should he join Ficendi’s group, he will be quickly disillusioned with (and horrified by) the true life of a pirate.

Alle is of average height, but is rather skinny. He has dark skin and eyes, but almost blonde hair. He is in his early twenties and is looking forward to his first Sherehe celebration later this Mwaka. He is full of energy and speaks very fast with lots of hand motions.

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# ADVENTURE SEEDS

This section lists several adventure seeds that could be used with a group of Player Characters (PCs) in the Katringa System.

## TROUBLE ON ADISA

The miners on the small outpost on Adisa have recently grown tired of their treatment by Stenalue Offido (the local Horizons Unlimited administrator), and attempted to form a union through which they could present their grievances. In response, Offido enlisted a squad of mercenaries to bully the miners away from forming the union, and after several confrontations the situation appeared to be under control.

However, the miners have now retaliated by declaring a total strike; all mining operations have ceased and Offido has not been able to negotiate a return to work. The administrator is currently unwilling to use the mercenaries for anything more than intimidation, but given the pressure from his superiors he is now rapidly running out of options.

The PCs could be brought in as additional mercenaries by HU, as HU representatives to negotiate with the miners, as mercenaries hired by the workers to take on the company's mercenaries, or they could just be caught on the moon when everything shuts down.

## ASTEROID MINING

The PCs can become miners in the rich Idowa Belt. Due to its proximity to the star Ayo, any ship entering the belt must be equipped with Heat Shielding and Radiation Shielding. If the PCs ship does not have these shields, the Katringa highport can install them in about one month per 1000 dtons of ship (round fractions up). In addition to the normal mining problems, the local Katringans will not like outsiders moving in on their operations; although HU will like the additional workers. Details about asteroid mining can be found in *Beltstrike*, or in the appendix of this book.

## SPRING THAW

For roughly five out of every twenty-two mwaka, Katringa is within the habitable zone of the star Ayo. During the long spring season, many of the frozen lakes near the equator thaw and flash floods often result as ice dams break. These floods are very dangerous for anyone caught in their path, such as PCs that might be mining or transporting goods to an outpost. Alternatively, the PCs could be involved in a rescue mission sent out to save other unfortunate souls trapped in a flood.

## TRIBAL WAR

While most of the Tribes get along reasonably well, there are always some groups that just hate each other. The Pettara and the Ulongolo Tribes are two such groups. Like the literary Montagues and Capulets, the feud has been going on so long the neither side can really remember how it started, and each side has a long list of atrocities committed upon them by the other. Peace is not really an option.

The PCs are asked to negotiate the release of a hostage from a group belonging to the Ulongolo Tribe. Their prisoner is a youngster of the Pettara Tribe.

When the PCs arrive to negotiate his release, they discover that the child is a hellion who has escaped from his captors and is running amok within the Ulongolo settlement. He is smart and sneaky and is causing all kinds of mischief by disabling power systems, hacking into the tribal computer network and generally making a huge nuisance of himself. The Ulongolo Tribe will gladly return the brat if the PCs could only find him before he does something really dangerous.

## THE KEYS OF PARADISE

One of the native extremophile microbes is found to produce a compound that provides a euphoric effect on humans or another race. Drugs are always in demand, no matter how illegal they might be. The possibility of a new drug would attract all kinds of underworld interest from many other systems. The PCs could be caught in many situations related to the discovery, refinement and distribution of this new drug. Another concern with new drugs are unpleasant side effects; most drug dealers are not concerned about these, and dealing with the possible consequences of this new drug could lead to many additional adventures.

## STOP THE ROCK

A small (140 metre diameter) asteroid is discovered in the outer system that will hit Katringa within the next mwaka. The PCs, along with the crew of another ship, are tasked with diverting the asteroid before it strikes the planet. Upon reaching their target, they discover that the asteroid is a small rubble pile, complicating their attempts to divert it. Possible hazards include the risk of sudden outgassing episodes on the ice-covered asteroid (possibly damaging the PCs' ship or the other ship, leading to a rescue scenario), and the asteroid breaking apart under the strain of their attempts at redirecting it.

## PIRATE HUNTERS

The PCs are hired by one of the Tribes to track down pirates that have recently been raiding ships returning to Katringa from the Idowa Belt. Over a dozen ships have been attacked, with most of the cargo and even a couple of ships stolen. None of the surviving crew members have been able to identify the pirates, but they seem to be using non-jump capable ships, so the hiring Tribe suspects it may be one of the other Tribes on Katringa. The PCs should begin making regular runs to and from the Idowa Belt in an attempt to attract the pirates, who eventually will make a mistake allowing them to be tracked back to their base, hidden in a supposedly abandoned settlement on Osumare (one of Accra's moons).

The pirates turn out to be rogue members of the Hathori Tribe, who turned to piracy as a way to make more money for themselves. The Hathori elders will disavow all knowledge of them, though it is unclear if they really were completely ignorant of their activities.

Few people realise that there *are* actually "professional" pirates in the system, operating from a base in the outer system at Olufemi. While these pirates deliberately do not attack ships within the Katringa system, they may become jittery as word gets out that someone is searching for pirates, which could cause some interesting complications.

## DERELICT

While operating near the Idowa Belt, the PCs detect a ship that appears to be a derelict. The ship is unpowered and no life forms can be detected from outside. The ship is an unfamiliar/non-standard design. The ship is in a decaying solar orbit and will enter the photosphere of Ayo within a few days and be destroyed. The exact details of the derelict are left to the referee, but the following suggestions are provided:

1. The derelict is actually a pirate vessel that was damaged and then abandoned. Investigation of the ship may lead the PCs to discovery of a pirate base within the system.
2. The derelict is a scout vessel from a rival interstellar government damaged during a space battle. The remains of the crew (all alien) will be found throughout the ship.
3. The ship is a derelict from an ancient, but known empire and could be worth a significant amount of money to archaeologists or historians.
4. The ship has several survivors in low berths hidden in a vault near the centre of the ship.
5. The ship is a decoy. Pirates are lurking nearby to attack any ship that attempts to dock with the derelict.
6. The ship belongs to one of the Tribes or to HU and the rightful owners will attempt to reclaim their ship when the PCs try to claim salvage rights and try to prevent the PCs from gaining any monetary benefit from their find.

- Several groups are staging demonstrations against HU. The PCs are asked to determine who is behind these demonstrations. They will discover that the demonstrations are actually being orchestrated by Edito Tionele so that he can declare Martial Law and crack down on any investigations of his corruption.
- The PCs are assigned to find out who was really behind a massacre at Jaman, one of the outlying settlements on Katringa. Red Scorpion mercenaries have attacked unarmed civilians and destroyed the atmospheric integrity of the settlement, killing hundreds. Rumours are that the Red Scorpions were acting under orders from someone, and fingers are pointing at Flamaray (which is not actually the case). The truth is that Edito Tionele was behind the massacre, attempting to stamp out an independence movement in the settlement and to shift the blame onto Flamaray to have him removed from the Board.
- After the assassination attempt of Afia Lungile Ewe, the PCs are asked to track Isoka Zuberi Akan. While watching him, they will uncover another attempt by Isoka to kill Afia.

The PCs will have to survive long enough and gather enough information and evidence for Flamaray to bring down the corrupt members of the board. This should provide enough material for several scenarios in a campaign that has the potential to significantly affect Katringa's future.

## POWER PLAY

The PCs are on Idowa Prime and are approached by Brava Czeniniski, the Administrator of the Idowa Belt. She will reveal that she has been tracking the PCs and has found them to be sufficiently trustworthy to be willing to assign them an important secret mission. It is an open secret that most of the members of the current Board of Directors for Katringa are corrupt and are stealing from HU and the Tribes. The corruption has been going on for a long time, but in the last couple of years has increased to the point that HU's Senior Directors have decided that something needs to be done to stop it.

HU have recently promoted Musta Flamaray to the Board of Directors with a mandate to locate and stamp out the corruption, and Czeniniski has joined forces with him. However, because the corruption is so endemic in the administration and within tribal culture, few people within HU or the Tribes can be trusted. Czeniniski wants to hire the PCs to work as investigators, following the corruption from the docks and mines to the pockets of the Board of Directors.

### Possible Missions include:

- Investigate the corruption (and incompetence) of Mattia Riping, the current Director of Starport Operations. There are rumours that Mattia is fronting a group of pirates, helping them sell their stolen cargoes disguised as speculative trade cargoes. The PCs should track the pirates to their base on Olufemi and deal with them.
- Approach Afia Lungile-Ewe and see if she is willing to join Czeniniski and Flamaray. While they are with Lungile-Ewe, there is an attempt on her life, and the PCs must protect her from the assassins.



# MINING THE IDOWA BELT

The Idowa Belt has been mined for almost three hundred years. As a result of this prolonged exploitation, almost all asteroids larger than 1 km in diameter have already been at least partially claimed. Horizons Unlimited maintains a database of known asteroids within the Idowa Belt that are larger than 1,000,000 displacement tons (approximately 150 m in radius). Only about 30% of the several million asteroids from 100 m to 1 km in diameter have been discovered so far. Miners generally select a region of the belt and investigate the known asteroids within that region, searching for a lucky strike; along the way, they might discover a smaller asteroid that has valuable resources. Due to the proximity of the belt to the star Ayo, no volatiles like Ice or Hydrogen exist in the belt.

When a miner finds a promising asteroid and assesses that it contains valuable resources, they must first file a Claim with Horizons Unlimited before being allowed to mine it. Each Claim covers a maximum of 10,000 dtons of an asteroid (roughly equivalent to a sphere with a radius of 32 metres, or a cube with sides that are 52 metres in length); smaller asteroids are therefore covered by a single Claim. Each ship is allowed to have up to two active Claims in operation at one time.

Claims are made by sending a communication to the HU Claims Office on Idowa Prime, with enough sensor and orbital information to fully detail the claimed asteroid. If there are no obstacles to the Claim, HU will transmit an acceptance of the Claim within 24 hours, after which the miner may begin extracting anything of value. A Claim Beacon must also be placed on the asteroid at the site of the claim. Filing a Claim costs Cr. 1,000; the Claim remains valid for one mwaka, but can be extended at a cost of Cr. 500 for each additional mwaka.

A Claim Beacon is a specialized type of Drone and is part of a standard set of Mining Drones. A Claim Beacon will remain active for one mwaka, and sends out a radio signal that is detectable within 0.5 AU. Claim Beacons are equipped with a computer and sensors that monitor the Claim, recording the volume of material mined as well as the date and time it was extracted. This data can be used to verify ore before purchase and also can be used in legal proceedings in cases of Claim jumping.

The majority of asteroids in any belt are 'low-yield', and are not profitable for the small, independent belter. Stony asteroids are common and are usually not profitable to exploit and metallic asteroids tend to be composed primarily of nickel and iron which are so common that they are not valuable elements. In order to turn a profit, beltiers typically seek out 'high-yield' asteroids in which collisions or other circumstances have exposed and/or concentrated valuable minerals and ores.

Locating a known asteroid using the HU database is a trivial task and does not require a task roll; the crew locates the desired asteroid in the database (usually by searching for specific beacon IDs, or by asteroid semi-major axis or size), and simply manoeuvres their ship to the asteroid's current location. All asteroids (regardless of size) that have been or are currently claimed are present in this database. The database contains the size of the asteroid, the number of

active and old claims on the asteroid, and the amount of material already mined.

It is not worthwhile to visit smaller asteroids that are in the database since they are either completely claimed, or have been fully exploited in the past. However, miners can visit larger bodies in the database in the hope that unclaimed regions on the asteroid still contain valuable resources.

Along the way it is possible that another asteroid that has not been previously detected may be discovered. To locate a new asteroid, the ship must be travelling in the belt and actively scanning for objects within sensor range.

**Detection:** To locate a previously unknown asteroid is a successful *Sensors, Intelligence, 6-36 hours, Difficult (-2)* task, modified by the ship's sensor DM. This is known as the Search task.

Once an asteroid is located, its size should be determined by determined by rolling 2d6 on the following table.

## IDOWA BELT ASTEROID SIZE

2d6	Size	Approx. Radius	# of Claims
2	1d6 x 50 dtons	5 – 10 m	1
3	1d6 x 100 dtons	7 – 13 m	1
4	1d6 x 250 dtons	9 – 17 m	1
5	1d6 x 500 dtons	12 – 22 m	1
6	1d6 x 1,000 dtons	15 – 27 m	1
7	1d6 x 2,500 dtons	20 – 37 m	1-2
8	1d6 x 5,000 dtons	26 – 46 m	1-3
9	1d6 x 10,000 dtons	32 – 59 m	1-6
10	1d6 x 50,000 dtons	55 – 100 m	5-30
11	1d6 x 100,000 dtons	70 – 126 m	10-60
12	1d6 x 250,000 dtons	94 – 171 m	25-150

The "approximate radius" column is to provide a rough idea of the asteroid's physical size. It assumes that the asteroid has a spherical shape equivalent to the volume shown in the "Size" column, but is approximate because the vast majority of asteroids in this size range are actually not at all spherical in shape (in fact, many deviate significantly from this). The "# of Claims" column shows how many claims can be contained in the asteroid (found by dividing the size in dtons by 10,000).

If an asteroid is over 10,000 dtons, only part of the asteroid may be covered by a single Claim. Multiple ships can work together and pool their Claims in order to cover all of a larger asteroid, or different ships can claim the other regions; having a single claim on an asteroid does not grant exclusive rights to exploit all other potential Claims there.

There are five types of Claim – Old Claim, Existing Claim, Low Yield, High Yield, and Special. Old and Existing Claims are present on Known Asteroids only, and cannot be rolled.

**Old Claim** - The Claim has already been mined by someone else, and now contains worthless material. Claim Beacons may or may not still be present, depending on whether the previous owners removed them after finishing with the Claim (if they are present, they will show that the Claim has expired).

Old Claims are generally obvious to identify, since previous mining often leaves visible scars on the asteroid's surface.

**Existing Claim** – The Claim has an active Claim Beacon on it, indicating someone else has the rights to mine this asteroid. If necessary, roll on the High Yield Find table to determine what sort of valuable ore is present in the Claim. It is illegal for other miners to exploit this Claim. Approximately 35% of all asteroids within the Idowa Belt have an existing Claim on them; over 90% of asteroids larger than 100,000 dtons have an Existing Claim.

**Low Yield** – A Low Yield Claim contains nothing of monetary value (usually worthless rock). As such, the Claim is entirely uneconomical to exploit.

**High Yield** – A High Yield Claim contains something that is worth mining. Roll on the High Yield Table below to determine what has been found within the Claim (see *165-166 TMB* for details of the types of ore available).

In all cases, the amount of material found in a Claim is smaller than the 10,000 dton limit; the rest of the claim is worthless material. For smaller asteroids, the maximum volume of material in the Find is limited by the volume of the asteroid, as determined by the Asteroid Size table on *24 SB1*.

**Special** – this result indicates that there is something unique about this asteroid; it could have unusually rare or large deposits, or something even more interesting. Roll on the Special Find table below.

When seeking out a new Claim, miners either travel to a known asteroid in order to exploit an unclaimed region on it, or they actively seek out unknown asteroids with no previous Claims.

**Identification:** For each unclaimed region, the miners must make a *Sensors, Intelligence, 6-36 hours, Difficult (-2)* task roll (modified by the Sensors DM and by any Space Science skill of the sensor operator) in order to determine the content of the Claim. Physical samples can provide additional positive modifiers to the roll (up to +2). One Identification roll is required for each Claim-sized area that is being scanned.

When this task is complete, the GM secretly rolls 2d6 and consults the Unknown Find table below and tells the miners what the Claim contains. Old and Existing Claims are never rolled as results, since they are assumed to already exist elsewhere on a Known asteroid, or to not be present at all on a previously undiscovered asteroid. If the task roll was successful then the GM gives a truthful report of the Claim contents; if the identification task failed then the GM can falsely report a Low Yield result as a High Yield or Special result, or vice versa.

Known asteroids smaller than 10,000 dtons will always contain either one Old Claim or one Existing Claim, and no Unclaimed regions. As such, they are not worth visiting by others, unless they are attempting to jump the Existing Claim.

Known asteroids larger than 10,000 dtons will always contain a minimum of one Old Claim or one Existing Claim – the rest are Unknown. The GM should determine (either by fiat or random determination) the number of remaining available Claims on the asteroid, and roll on the Unknown Find table to determine their contents.

The Unknown Find table is also used for all Claim regions on new asteroids that have just been discovered by the miners.

## UNKNOWN FIND

2d6	Type of Find
2-8	Low Yield
9-11	High Yield
12	Special

Once the type of Claim has been identified, its exact contents can be determined by rolling 2d6 on the High Yield or Special Find table as appropriate (no task roll is required for this). The amounts listed in the High Yield and Special tables represent the total amount of material extracted once the entire Claim volume has been fully mined.

## HIGH YIELD FIND

2d6	Find
2	Crystals & Gems (1d6 x 25 dtons)
3	Crystals & Gems (1d6 x 10 dtons)
4	Uncommon Ore (1d6 x 250 dtons)
5	Basic Ore (1d6 x 500 dtons)
6	Basic Ore (1d6 x 250 dtons)
7	Basic Ore (1d6 x 100 dtons)
8	Uncommon Ore (1d6 x 50 dtons)
9	Uncommon Ore (1d6 x 100 dtons)
10	Uncommon Raw Material (1d6 x 50 dtons)
11	Uncommon Raw Material (1d6 x 100 dtons)
12	Special

On a result of Special, roll on the Special Find table to determine the contents of the Claim.

## SPECIAL FIND

2d6	Find
2	Salvage (see <i>140 TMB</i> )
3	Uncommon Raw Materials (1d6 x 500 dtons)
4	Uncommon Raw Materials (1d6 x 250 dtons)
5	Precious Metals (1d6 x 100 dtons)
6	Precious Metals (1d6 x 50 dtons)
7	Uncommon Ore (1d6 x 500 dtons)
8	Basic Ore (1d6 x 1,000 dtons)
9	Crystals & Gems (1d6 x 100 dtons)
10	Crystals & Gems (1d6 x 50 dtons)
11	Uncommon Ore (1d6 x 1,000 dtons)
12	Radioactives (1d6 x 5 dtons)

Salvage is found either on the asteroid surface (if the asteroid is large) or replaces the asteroid if its size was comparable to that of a starship.

## MINING THE OUTER ASTEROIDS

The vast majority of the Outer Asteroids have not been surveyed or mined, and most remain undetected. Only the thirteen largest bodies (greater than approximately 100 km radius), have been accurately mapped. Olufemi itself has been completely exploited, and the entire asteroid is classed as an Old Claim. The Outer Asteroids are separated by very large distances, so locating an asteroid is a much longer process than in the crowded Idowa Belt.

Only a few hundred large Outer Asteroids have been visited by miners, and there are recorded in the HU database. The University of Ashanti maintains a separate database of several thousand Outer Asteroids that it has tracked from its observatory on Temitope in order to determine if any are on Katringa-crossing orbits; these have not been physically visited, however. There are millions more objects in the outer system that are simply too small to be detected from the University's observatory on Temitope.

Outer Asteroid mining uses the same rules as for the Idowa Belt, unless otherwise specified.

**Detection:** Almost all of the Outer Asteroids are unknown. To locate a previously unknown outer asteroid is a successful *Sensors, Intelligence, 2-12 days, Very Difficult (-4)* task, modified by the ship's sensor DM.

The size of the asteroid detected is determined by rolling on the Outer Asteroids Size table. There is a bias towards larger asteroids since these are more likely to be detected given the vast distances that separate them.

### OUTER ASTEROID SIZE

2d6	Size	Approx. Radius	# of Claims
2	1d6 x 250 dtons	9 – 17 m	1
3	1d6 x 500 dtons	12 – 22 m	1
4	1d6 x 1,000 dtons	15 – 27 m	1
5	1d6 x 2,500 dtons	20 – 37 m	1-2
6	1d6 x 5,000 dtons	26 – 46 m	1-3
7	1d6 x 10,000 dtons	32 – 59 m	1-6
8	1d6 x 50,000 dtons	55 – 100 m	5-30
9	1d6 x 100,000 dtons	70 – 126 m	10-60
10	1d6 x 250,000 dtons	94 – 171 m	25-150
11	1d6 x 500,000 dtons	119 – 216 m	50-300
12	1d6 x 1,000,000 dtons	323 – 585 m	100-600

**Identification:** Once an asteroid is discovered, an identification roll is made as described on *25 SB1*.

### OUTER ASTEROID FIND

2d6	Type of Find
3-9	Icy
10-11	Low Yield
12	High Yield

**Icy** – An Icy Claim is made largely of water ice and other volatiles. Each Icy Claim can be mined for 1d6x1,000 dtons of Water Ice which can be sold for Cr. 100 per dton, and 1d6x500 dtons of Volatiles (frozen gases such as methane, ammonia, nitrogen, and carbon monoxide) which can be sold for Cr. 500 per dton.

**Low Yield** – Low Yield claims in the outer system consist of worthless rock, and contain nothing worth mining apart from a surface veneer of 1d6x100 dtons of Water Ice.

**High Yield** – Roll on the Outer Asteroid High Yield Table below to determine the contents of the Claim. Additionally, 1d6x100 dtons of Water Ice will be present.

**Special** – this result indicates that there is something unique about this asteroid; it could have unusually rare or large deposits, or something even more interesting. Roll on the Outer Asteroid Special Find table below.

### OUTER ASTEROID HIGH YIELD FIND

2d6	Find
2	Biochemicals (1d6 x 50 dtons)
3	Biochemicals (1d6 x 25 dtons)
4	Uncommon Ore (1d6 x 250 dtons)
5	Basic Ore (1d6 x 500 dtons)
6	Basic Ore (1d6 x 250 dtons)
7	Basic Ore (1d6 x 100 dtons)
8	Uncommon Ore (1d6 x 50 dtons)
9	Uncommon Ore (1d6 x 100 dtons)
10	Uncommon Raw Material (1d6 x 50 dtons)
11	Uncommon Raw Material (1d6 x 100 dtons)
12	Special

On a result of Special, roll on the Special Find table to determine the contents of the Claim.

### OUTER ASTEROID SPECIAL FIND

2d6	Find
2	Salvage (see <i>140 TMB</i> )
3	Biochemicals (1d6 x 100 dtons)
4	Uncommon Raw Materials (1d6 x 250 dtons)
5	Precious Metals (1d6 x 25 dtons)
6	Precious Metals (1d6 x 10 dtons)
7	Uncommon Ore (1d6 x 500 dtons)
8	Basic Ore (1d6 x 1,000 dtons)
9	Crystals & Gems (1d6 x 100 dtons)
10	Crystals & Gems (1d6 x 50 dtons)
11	Biochemicals (1d6 x 250 dtons)
12	Radioactives (1d6 x 5 dtons)

## MINING AND SELLING ORE

Mining asteroids and processing the ore is usually done by mining drones, and requires a *Remote Operations, Intelligence, 6-24 hours, Routine (+2)* task. Each 10 dtons of Mining Drones installed on a ship will mine 1d6 x 10 dtons (plus the Effect of the Remote Operations roll x 10) per successful mining task, which can then be stored in the ship's cargo hold. Once properly mined and processed, the ore may be sold as any other trade good (*162-166 TMB*).

A ship may use mining drones to mine Water Ice or Volatiles from asteroids and convert it into unrefined LHyd fuel and oxygen. If fuel processors are present on the ship, they can be used to convert this into refined fuel. Mining water ice from an asteroid requires a *Remote Operations, Intelligence, 1-6 hours, Routine (+2)* task. Each 10 dtons of Mining Drones installed on a ship will mine 1d6 x 10 dtons of ice (plus the Effect of the Remote Operations roll x 10) per successful mining task; only 10% of this tonnage will eventually be converted to fuel.

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## ***MINING THE IDOWA BELT***

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Miners have two options for selling their goods. They can exploit the claim themselves and sell it on the market at Katringa using standard speculative trade rules (see *164 TMB*), although Horizons Unlimited takes a cut of 25% of the value that it is sold for.

Alternatively, they may sell the claim directly to HU rather than mine it themselves. HU are only interested in purchasing claims whose total base price is greater than Cr. 5,000,000, corresponding to a minimum of 5,000 dtons of Basic Ore, 1,000 dtons of Uncommon Ore, 250 dtons of Uncommon Raw Material or Crystals/Gems, 100 dtons of Biochemicals or Precious Metals, or 5 dtons of Radioactives; anything else is not worth their while.

If they are interested in the Claim, HU will pay a Finder's Fee to the miners equal to 15% of the base market price of the total amount of valuable material found, and the miners relinquish all rights to that claim. Claims sold to HU do not expire, though HU may opt to sell it at a later date to another group of interested miners.

Most miners will only sell their claim to HU if it is too large for them to deal with themselves, though some have taken to making their money solely by locating Claims for HU.



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