Calculation of Serku's Albedo.

The formula for calculating this is in Book 6 Scou[illegible] page 47.

Geographic feature	% Surface	Albedo	(% Surface × Albedo)	Calculated Albedo
Cloud	%20	~ 0.5	0.1	0.234
Ice	%10	0.55	0.055	
Land	%50	≃ 0.15	0.075	
Water	%20	0.02	0.004	

Albedo was eventually fudged as 0.2 (Earth's is slightly higher)

$$T_e = 345.6 + (288 \times G) - (288 \times A)$$
$$= 345.6 + (288 \times 0.1) - (288 \times 0.2)$$
$$= 316.8\ °K$$
$$T = (T_e \times L^{1/4}) / D^{1/2}$$
$$= (316.8 \times (0.89)^{1/4}) / 1^{1/2}$$
$$= 296.5°\ K \quad = 18.5°C$$

This formula is used because the one given in book 6 Scouts is wrong.

Albedo can be fudged downward from calculated value of 0.234 to 0.2 by reducing reflectivity clouds (Book 6 can be as low as 40%). The CO_2 content of the atmosphere may also be elevated slightly (increasing greenhouse effect) to give the same result.

Calculation Of Serkurs Temperature

Serkur's star is magnitude G3V
Bolometric magnitude for GØV = 4.57 and G5V = 5.20
(Book 6 - scouts)
Extrapolated for G3V stars = 4.948
By the same process, stella luminosity = 0.89,
Effective stella temperature = 5700 °C
Stella radius = 0.958 } w.r.t. suns
Stella Mass = 0.98 }

Serkur is size 3 - 4800 km (mars size)
Has a standard atmosphere but a planet this size would normally be unable to retain such an atmosphere for an apreciable length of time by natural means. Stolution: Make Serkur a dense planet giving it a surface gravity of 0.8 x Earth's (Jump / throw distances x 1.1)

Other physical parameters of Serkur:
Volume = 0.053
Surface area = 0.141 x Earths
Albedo = 0.234 (calculated below)
20° axial tilt. Average temperature = 18.8°C (see below)
Standard Atmosphere = +10% greenhouse effect
Cloudyness = 20% of planet covered.

Calculation of temperature
(1) $T_e = 345.6 + (288 \times G) - (288 \times A)$ (Wiki Dwarf)
~~where~~

and

(2) $T = (T_e \times L^{1/4}) / D^{1/2}$ (Wiki Dwarf)

where T = Global temperature
Te = Temperature of planet if 1 AU from a stella luminosity 1 star
L = Stella Luminosity
D = Distance from star in AU's
G = Green house effect
A = Albedo

ie, First we calculate temperature of a planet if it was in Earth's orbit, Then take into account the star and position