

Kerbal Space Program - Bug #19153

Solar flux increases unrealistically fast near sun

06/05/2018 02:56 AM - Anonymous

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|------------------------|-----------|---------------------|--------------|
| Status: | New | Start date: | 06/05/2018 |
| Severity: | Low | % Done: | 0% |
| Assignee: | | | |
| Category: | Physics | | |
| Target version: | | | |
| Version: | 1.3.1 | Language: | English (US) |
| Platform: | Windows | Mod Related: | No |
| Expansion: | Core Game | | |

Description

We would expect the solar flux to increase as $1/(\text{distance-to-center})^2$ as we approach the sun, the usual $1/r^2$ law for radiation of conserved quantities from a spherically-symmetric source. (This $1/r^2$ law follows from the fact that the total energy exiting the surface of the sun is the same as the total energy flux through any larger sphere enclosing the sun.)

Experimentally, the dependence on distance is $1/(\text{altitude-from-solar-surface})^2$

<https://forum.kerbalspaceprogram.com/index.php?topic/165795-bad-offset-for-stellar-energy-flux-thermalsolar-energy-flux-from-star-should-be-calculated-from-center-of-it/>

This gives an infinite flux on the surface of the sun, and 11% too much flux at Moho.

People who know how to calculate the heat flux, and plan a trip to the atmosphere of the sun, are prevented by this bug

<https://forum.kerbalspaceprogram.com/index.php?topic/122867-the-sun-kerbol-has-an-atmosphere/&do=findComment&comment=3392516>