Kerbal Space Program - Bug #24354

Craft oriantation change while orbiting 100km

11/10/2019 12:00 PM - kubi

Status:	New	**Start date:**	11/10/2019
Severity:	Low	**% Done:**	0%
Assignee:			
Category:	Gameplay		
Target version:			
Version:	1.8.1	**Language:**	English (US)
Platform:	Linux	**Mod Related:**	No
Expansion:	Core Game, Making History		

Description

If a craft **orbits below 100km**, its **orientation drifts** compared to the Sun or maneuver node **over time**.
If the orbit is **higher than 100km**, the **orientation stays correct**.
The threshold is exactly at 100km, as far as I could test it.
The threshold is 100km for Kerbin and for the Mun too.
If the orbit is not circular, e.g., Pe 90km / Ap 110km, the orientation drifts to a lesser extent. It seems to be **proportional to the time spent below 100km**.
The **drift depends on the celestial body**. At Kerbin it is approx. 30 degrees, at Mun it is approx. 10 degrees over an orbit.
It seems that the craft's orientation is **locked to the celestial body** while it flies under the threshold, and locked to the Sun (or parent body?) when it flies above the threshold.

Test method:

1. Create a small craft. Good to have fixed and tracking solar panels too for testing the orientation change compared to the Sun.

1. Create a mostly circular equatorial orbit (fly or cheat) on 99km or less around the selected celestial body.
2. Create maneuver node
3. Point the craft towards the node
4. Time accelerate through one orbit
5. The craft points **X degrees off target**
6. Note the drift depends on the celestial body

1. Create a mostly circular equatorial orbit (fly or cheat) on 101km or more around the selected celestial body.
2. Create maneuver node
3. Point the craft towards the node
4. Time accelerate through one orbit
5. The craft is **on target**

1. Create an elliptical equatorial orbit Pe<100km / Ap>100km
2. Create maneuver node
3. Point the craft towards the node
4. Time accelerate through one orbit
5. The craft points **Y < X degrees off target**
6. Note the drift depends on the celestial body and to the proportion of the orbit below 100km

1. Create an elliptical, polar or equatorial orbit Pe<100km / Ap>100km or circular below the threshold
2. Point the craft having a fixed or tracking panel facing towards the Sun
3. Time accelerate through one orbit
4. The fix panel points **off the Sun**, the tracking panel rotates
5. Note the drift depends on the celestial body and to the proportion of the orbit below 100km

History

#1 - 11/05/2022 05:47 PM - jclovis3

There is a related issue to this. While under 100 km, and outside the atmosphere height of a planet like Eve and Duna, the AP actually increases without thrust. When the craft continues to orbit outside of the 100 km range, then AP locks static. I've seen this on Eve and Duna both in which my craft were aerobraking on Duna or Eve and upon exiting the atmosphere altitude, I noticed that the AP started climbing rather than stopping to decline.

Video: https://youtu.be/Tq0T1huchGE
Related to issue 10087.