

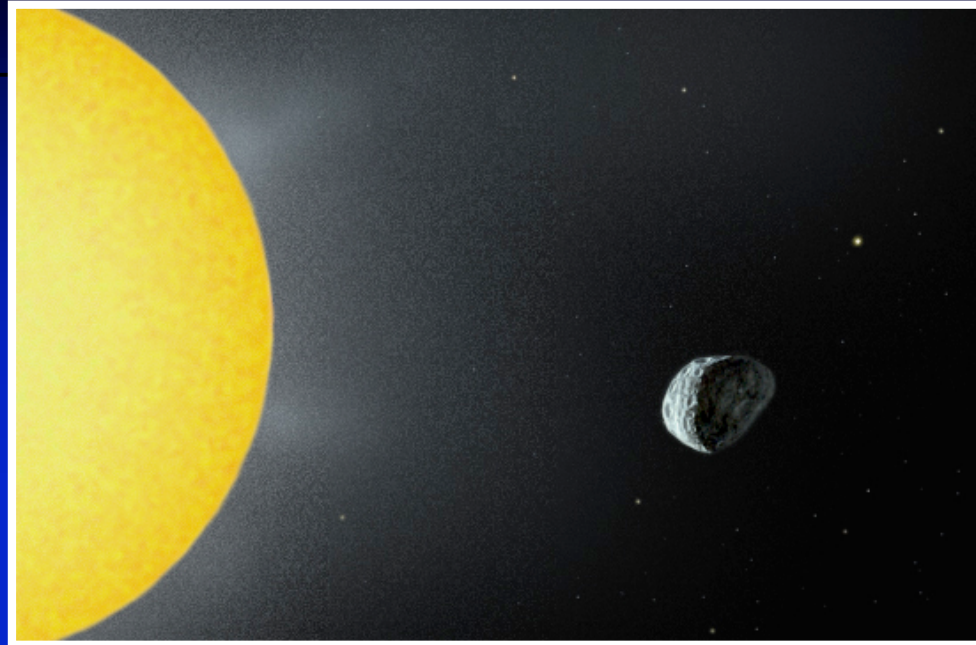
Planetary Science From Next-Gen Suborbital Platforms



Sleuthing the Long Sought After Vulcanoid Asteroids

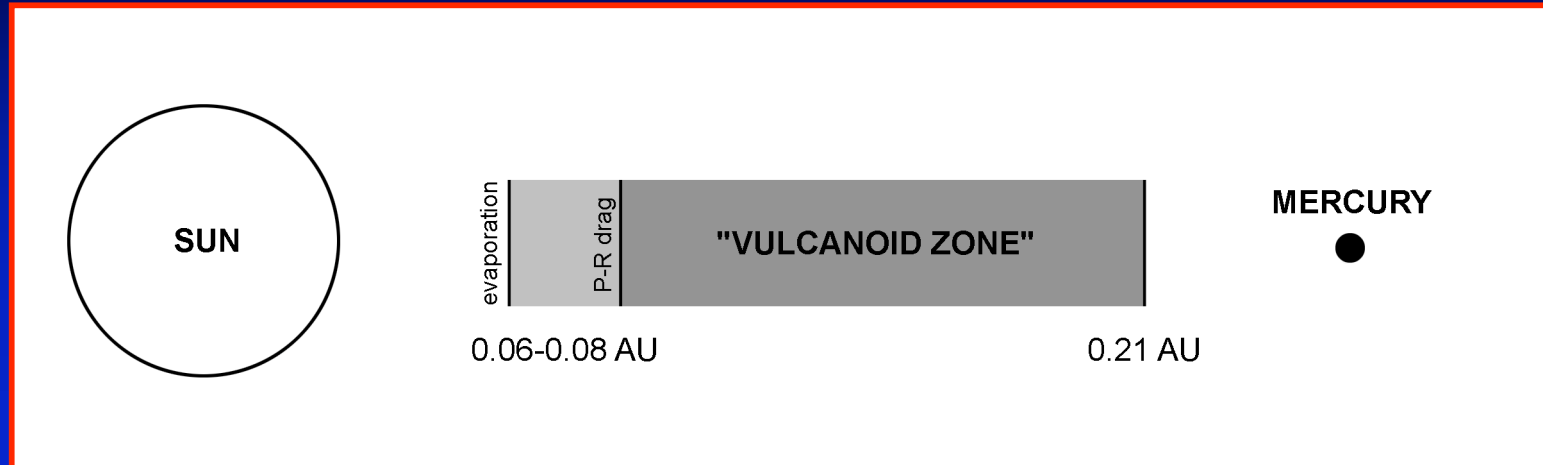
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What are Vulcanoids?



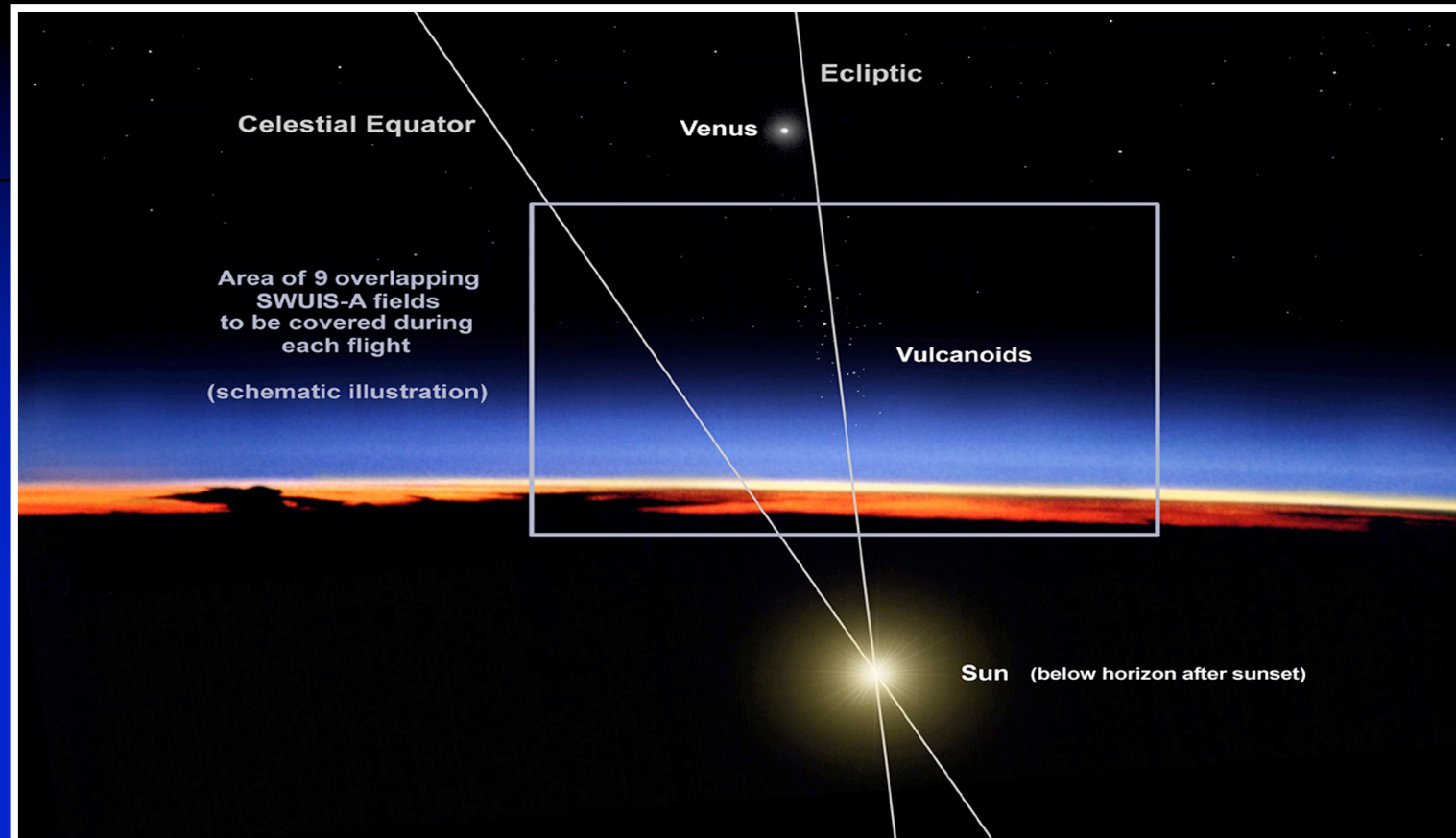
**A putative population of small,
asteroid-like objects
orbiting closer to the Sun than Mercury**

The Vulcanoids



- ✓ **An intrinsically interesting new class of objects.**
- ✓ **A sample of condensed material from the early inner solar system.**
- ✓ **With strong relevance to Mercury's cratering record.**

The Observing Strategy



High-altitude flight at twilight to create darker twilight conditions than are possible from the ground. Place the Sun $>6^\circ$ below the depressed horizon; the outer region of the Vulcanoid zone (at ~ 0.21 AU, $\sim 12^\circ$ from Sun) is then imaged.



The Aircraft Platforms



NASA 852 F/A-18B Hornet used for
photo chase



NASA Dryden Flight Research Center Photo Collection
<http://www.dfrc.nasa.gov/gallery/photo/index.html>

NASA Photo: EC00-0355-15 Date: December 29, 2000 Photo by: Lori Losey

NASA Dryden's F/A-18 #852 in flight.

The SWUIS-A Instrument



**SWUIS-A
installed in F-18 aft cockpit**



NASA 852 rear cockpit in flight

The NASA Research Pilots



Rick Searfoss



Dana Purifoy



Craig "Bomber" Bomben

The SwRI Flight Astronomers

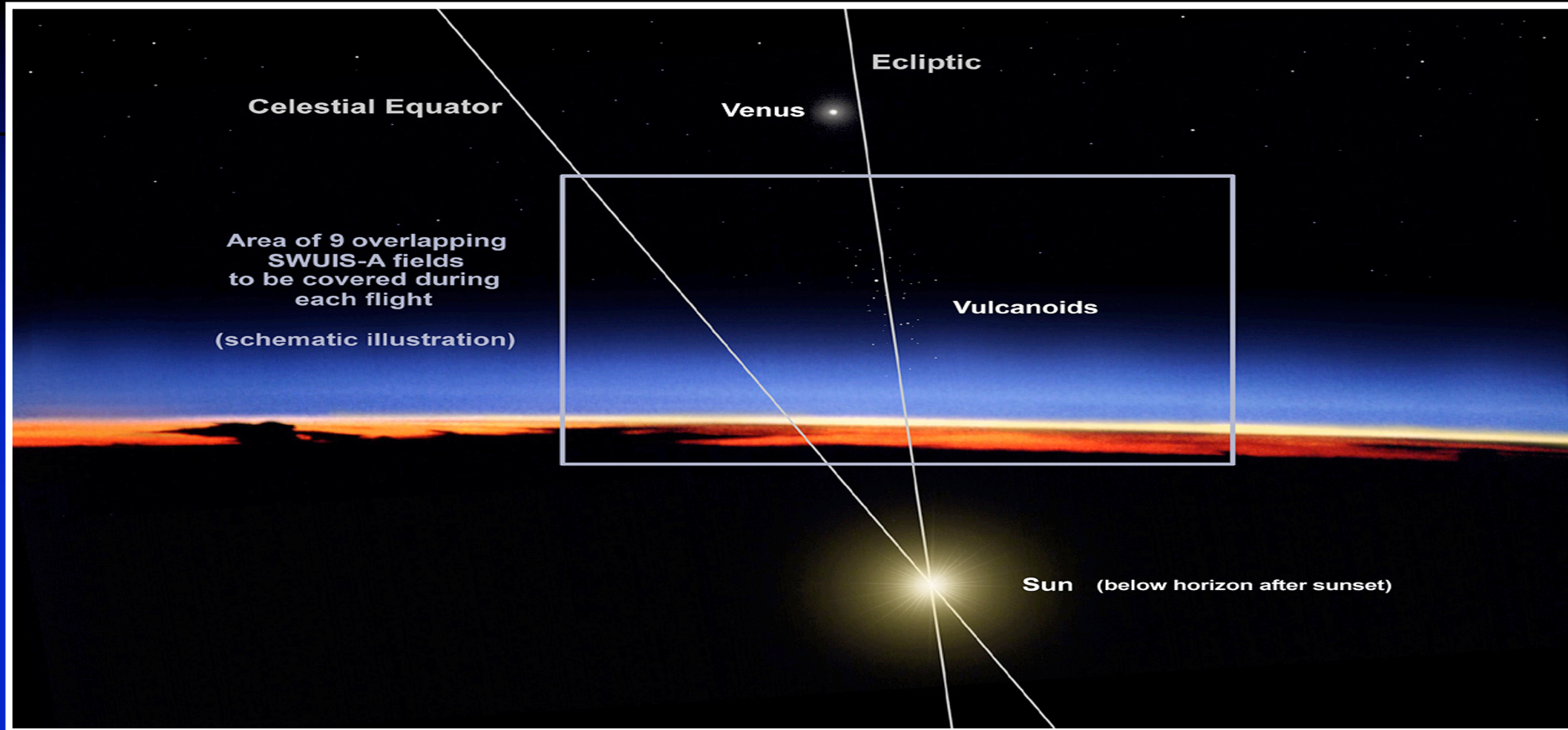


Dan Durda



Alan Stern

Vulcanoids Next— *Going Suborbital*



- ✓ Better suborbital than from the ground.
- ✓ Better suborbital than from aircraft.
- ✓ Better suborbital than from spacecraft.