

## COBE Slide 3

The COBE orbit and spin axis orientation. The orbit nearly passes over the Earth's poles at an altitude of 900 km (559 miles). The orbital plane is inclined by 99 degrees to the Equator, causing the orbit to precess (turn) to follow the apparent motion of the Sun relative to the Earth. (The precession is caused by the Earth's equatorial bulge, which in turn results from the Earth's daily rotation about its axis.) Thus, the spin axis stays pointed almost perpendicular to the direction of the Sun and in a generally outward direction from the Earth. As the COBE orbits the Earth once every 103 minutes, it views a circle on the sky 94 degrees away from the Sun, and as the Earth moves around the Sun over the course of a year the COBE gradually scans the entire sky. The spacecraft rotates at 0.8 rpm. The FIRAS instrument is aligned with the spin axis. The DIRBE and DMR instruments point "off axis" and observe half the sky every orbit.

