Active Atmospheric Limb Sounding With an Orbiting GPS Receiver

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We intend to demonstrate active limb sounding of the atmosphere using an orbiting Global Positioning System (GPS) receiver. Phase shifts in GPS signals transecting the atmosphere will be detected by the orbiting receiver. Active limb sounding data will be converted into vertical refractivity, temperature, and humidity profiles. One kilometer vertical resolution from 50 km to the surface, sub-Kelvin temperature accuracy in the lower stratosphere, and hundreds of soundings per day are expected. Launch of the spacecraft is planned for February 1994. The data set will be made available for weather, climate, geodetic, and other research. The GPS/MET program is being conducted by scientists at the University Navstar Consortium (UNAVCO), the University Corporation for Atmospheric Research (UCAR), the National Center for Atmospheric Research (NCAR), the Jet Propulsion Laboratory (JPL) and the University of Arizona, with participation by Orbital Sciences Corporation and Allen Osborne Inc. The program is sponsored by the NSF, NOAA, and the FAA.