

## **Atmospheric Parameter Estimations in Mesosphere and Lower Thermosphere Retrieved by FORMOSAT-3/COSMIC Satellites**

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In this study, we investigate the properties of bending angles of GPS rays piercing through mesosphere and lower thermosphere (MLT) region, which are retrieved by FORMOSAT-3/COSMIC satellites by using radio occultation technique. The GPS bending angle is resulted from the refraction effect of atmospheric refractive index on the GPS ray, which is determined by the temperature and electron density in MLT region. With MSIS model, the GPS bending angles in MLT region is simulated, in which the components of the refractive index caused by the temperature and electron density are estimated, respectively. The use of a meteor radar can obtain temperature profile in MLT region from temporal variation in the amplitude of under-dense meteor trail echo. The electron density can thus be estimated from the retrieved refractive index combined with radar-measured temperature. The profiles of COSMIC-retrieved bending angles and radar-estimated temperature along with electron density in MLT region over Chung-Li radar site are presented in this research and their properties will be discussed as well.

### **References**

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