

## Lower tropospheric fields derived from COSMIC radio occultation data

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The Global Positioning System Radio Occultation (GPS RO) technique provides vertical profiles of refractivity from which other properties such as temperature and water vapor can be derived. It is possible to reproduce global, synoptic, and regional climatological patterns.

From FORMOSAT-3/COSMIC mission data (2006-2010), our previous knowledge regarding global and synoptic/regional patterns of temperature, equivalent potential temperature, specific humidity, precipitable water, and pressure is verified.

High values of precipitable water over the monsoon regions and low values coinciding with the dry zones are obtained. Low values of humidity over tropical regions during winter in both hemispheres and high values over the equator during both seasons are found.

Additionally, a principal component analysis is used to compare GPS RO data with Tropical Rainfall Measuring Mission (TRMM) precipitation radar (PR) over a region including South America, the Pacific and Atlantic Oceans.