

GPS RO PROCESSING FROM RAW PHASE AND AMPLITUDE TO BENDING ANGLE

B. Schreiner *(1)

(1) UCAR/COSMIC, Boulder, CO, USA

This presentation will give an overview of the GPS radio occultation (RO) data processing steps required to produce accurate bending angles for neutral atmospheric inversion. The three main steps of this process include: 1) precise orbit determination (POD) to obtain accurate knowledge of the position and velocity of the receiving and transmitting antennas, 2) computation of atmospheric excess phase for the occulting GPS satellite signal, and 3) computation of ionosphere-free neutral atmospheric bending angles. The presentation will start with an overview of modeling of the fundamental GPS carrier phase observation. POD processing details will then be presented. This will be followed by a description of excess phase computation for zero-, single, and double-difference processing approaches. Then the computation of ionosphere-free bending angles will be discussed. The presentation will conclude with a quality assessment of bending angles from different RO missions.