GPS BISTATIC ALTIMETRY: A TOOL FOR STUDYING OCEAN MESOSCALE FEATURES

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ABSTRACT

The possibility of doing altimetry and scatterometry with the signal broadcast from the Global Positioning System (GPS) is currently being pursued as a possible augmentation of the existing ocean remote sensing capabilities. The main attractive features of the GPS signal for ocean remote sensing are dense spatial and rapid temporal coverage, combined with relatively inexpensive receiver technology, which could make the global monitoring of mesoscale features possible for the first time. The talk discusses the main features of the new type of measurement, starting with signal characteristics and how these relate to the quantities of oceanographic interest. Measurement sensitivity, expected resolution, accuracy and sources of error will be described. A summary of preliminary findings on altimetry accuracy stemming from our analysis of data from fixed receivers elevated above a body of water as well as moving receivers will be presented. Furthermore, the discussion will touch on enabling technologies and basic considerations for a system design. A specific mission design currently being investigated at NASA under the UnESS program will be addressed briefly.