

# IGARSS 2000 ABSTRACT SUBMISSION TEMPLATE

CORRESPONDING AUTHOR: William J. Wilson

AFFILIATION: Jet Propulsion Laboratory, Calif Inst of Tech

ADDRESS: Bldg 168-327, 4800 Oak Grove Dr.

CITY: Pasadena

STATE: CA

POSTAL CODE: 91109

COUNTRY: US

TELEPHONE: (818) 354-5699

FACSIMILE: (818) 393-4683

EMAIL: william.j.wilson@jpl.nasa.gov

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## ABSTRACT TITLE:

Active/Passive Microwave System with Deployable Mesh Antenna for Spaceborne Ocean Salinity Measurements

## AUTHOR(S):

List names only...if subsequent authors have different mailing addresses, please use a second sheet to provide data

William J. WILSON, Eni G. NJOKU, Simon H. YUEH

## ABSTRACT TEXT:

Text block boundaries are fixed. Abstract cannot exceed boundaries.

Concepts for a mesh deployable antenna system with active and passive microwave sensors for precision high resolution sensing of the Earth surface are described. The technology of large, lightweight mesh antennas is applied to the remote sensing of ocean, land, and cryospheric where low frequencies and/or high spatial resolution are required. Sea surface salinity is the primary application since it requires precision low frequency observations at 1.4 GHz and spaceborne measurements of this parameter do not currently exist. In measurements of sea surface salinity, it has been shown that it is necessary to have high sensitivity and high stability systems because the salinity signal is very small. Also, to correct for surface roughness effects, it has also been shown that having an active channel will improve the measurement accuracy to 0.1 psu.

In one concept, a 6-m diameter offset-fed parabolic reflector antenna is used with radiometers and scatterometers operating at L and S bands. The antenna boresight is offset from nadir and the entire system rotates about the nadir axis, providing a conical scan with high-precision measurements over a 900-km wide swath at a spatial resolution of ~40-km from a 600-km orbit altitude. This instrument would provide global coverage within 3 days. Another lower cost concept would be to have a smaller fixed antenna to sample along with multiple footprints. This would take less than 2 weeks to achieve global coverage at a 100-km scale.

**TOPIC PREFERENCE:** Ocean Salinity Special Session