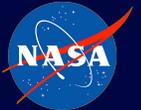


# A Microwave Sounder for Geostationary Orbit



**Bjorn Lambrigtsen**  
 Jet Propulsion Laboratory - California Institute of Technology

## GeoSTAR

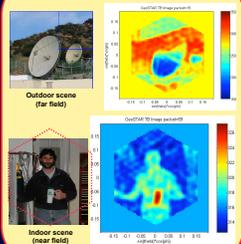
### NASA technology

#### The GeoSTAR prototype

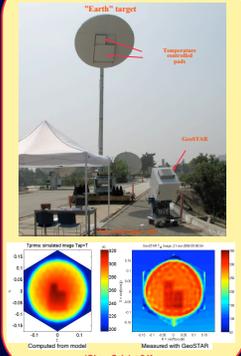


Space version will be more compact and have many more receivers

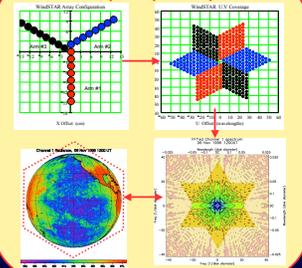
#### First images!



#### Quantitative calibration



#### GeoSTAR principle of operation

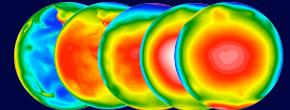


### NOAA applications

#### Hurricanes

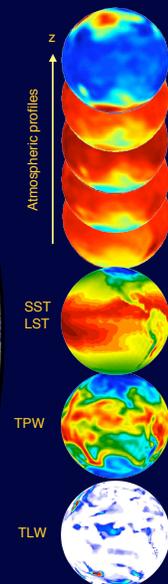
- Real-time observations every 10 minutes; rain-radar emulation
- Rain rate & storm total
  - Microphysics
  - Convective intensity
  - Nowcasting
  - Intensification
  - Weakening
  - Complete life cycle

#### 50-GHz channels

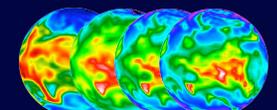


#### Weather

- NWP - Assimilate Tb's
  - T-ch's every 20 min
  - q-ch's every 10 min
  - 4DVAR-perfect
- Other applications
- All-weather profiles
  - Tropo. wind vectors
  - IR "cloud clearing"
  - NRT severe-storm watch
  - CAPE/LI in clouds
- SST
- Accurate & continuous



#### 183-GHz channels



*Decadal-Survey  
 "PATH"  
 Mission*

*A potential joint NASA-NOAA Mission Of Opportunity  
 Provides key urgent GEO measurement requirements*