

# Emerging instrument options from manufactures

1. Sippican, Tom curran
2. Vaisala, Ken Goss/Hannu Jauhiainen
3. Intermet: Fred Clowney
4. China: Li Feng
5. India: Ramesch Bhatia
6. Russia: Alexander Kats
7. TDL: Mark Paige
8. Japan: Masato Shiotani
9. Modem: Remy Pepin/Patrick Kelly

# Session 3:

## Instruments, Platforms and Deployment Options

### Talks:

1. *Reference Radiosonde Options*

**Junhong Wang** NCAR

2. *Measurements of Temperature, Water Vapor, Clouds, and Winds Derived from Ground-Based Remote Sensors; Measurements of the Surface Radiation Balance*

**Jim Liljgren** ANL

3. *GPS Atmospheric Sensing*

**Chris Rocken** NCAR




# Areas for discussion

- Existing, new, and planned instruments
- Requirements – IT, hardware, infrastructure, operability
- Deploying all instruments to all sites or instigating a tiered system?
- Identification and prioritization of core and supplement instruments and operational data for redundancy and additional parameters.



# Reference radiosonde system

- **Temperature:** multi-thermistor or better radiation corrections
  - **Water vapor:** TDL, dew/frost-point hygrometer, Polymer
  - **Pressure/height:** any or no pressure sensor
  - **GPS wind:** any (cost and size)
  - **Other variables:** ozone and what else?
  - **Integration:** sensor module design, transmitter, mobility, portability ...
  - **“Reference”:** best sensors, extraordinary procedures, calibration, inter-comparisons, real-time data quality monitoring, effective communications ...
  - **“Long-term stability”:** best quality, consistence, metadata, data QC and analysis, redundancy ...
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# Redundant and new measurements from ground-based remote sensors

- **Temperature:**
- **Water vapor:**
- **Clouds:**
- **Winds:**
- **Surface radiation:**
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# GPS Atmospheric Sensing

- **Ground-based:**
- **GPS Occultation:**



# Redundant and new measurements from ground-based remote sensors

- **Temperature:**
- **Water vapor:**
- **Clouds:**
- **Winds:**
- **Surface radiation:**
- 



# Other instrument and operational data options





# Core vs. supplemental instrument and operational data options

- **Core:**
- **Supplemental:**



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