Associated Programs: SAMOS Initiative

Shawn R. Smith

Center for Ocean-Atmospheric Prediction Studies

The Florida State University

Tallahassee, FL, USA

smith@coaps.fsu.edu

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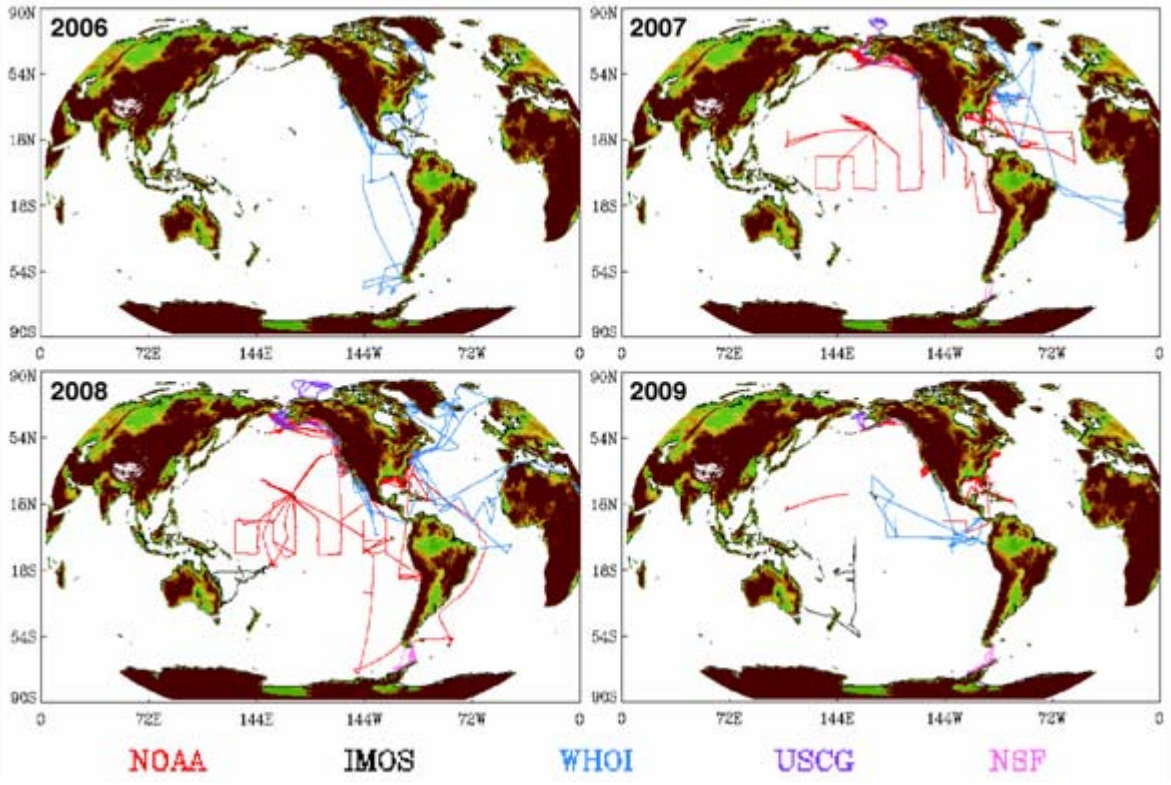
SAMOS Overview

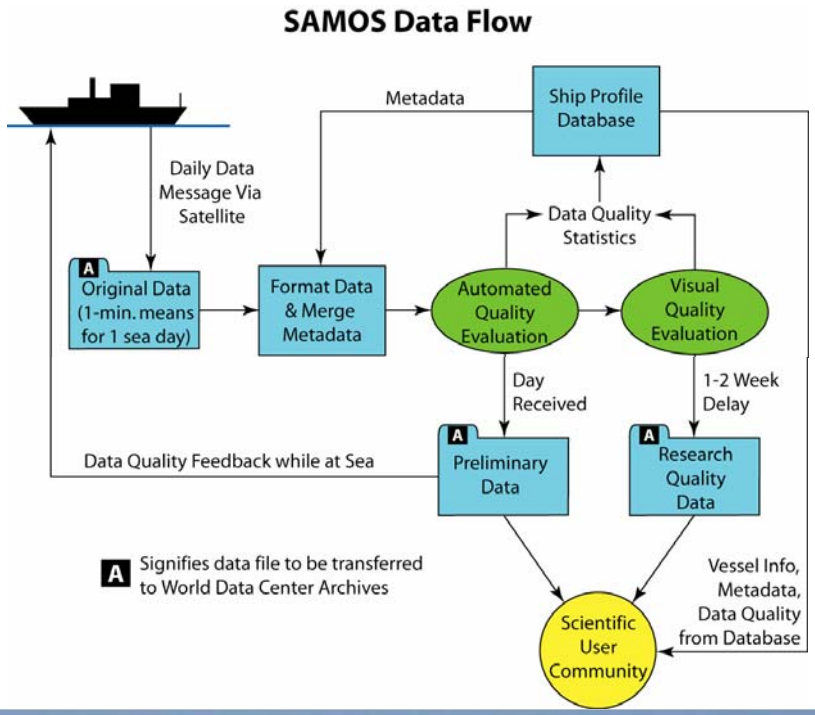
- Routine collection and quality evaluation of underway meteorology and surface ocean data from research vessels
- Parameters
  - Position, course, speed, heading
  - Tair, humidity, winds, pressure, radiation
  - Tsea, salininty, conductivity
- Instruments deployed by vessel operators (typically not from NMS)
- Australian IMOS project first international SAMOS partner (*Southern Surveyor*)



- Currently receiving data from 21 RVs
  - NOAA (15), WHOI (3), USCG (1), NSF (1), IMOS (1)
  - Additional vessels under recruitment

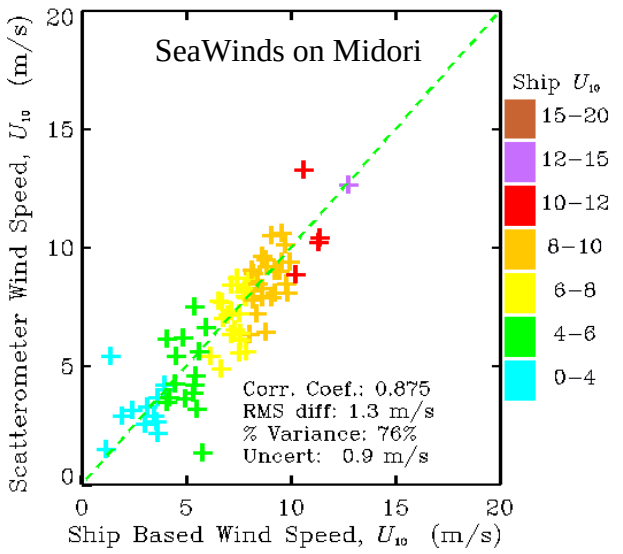
SAMOS Data Processing

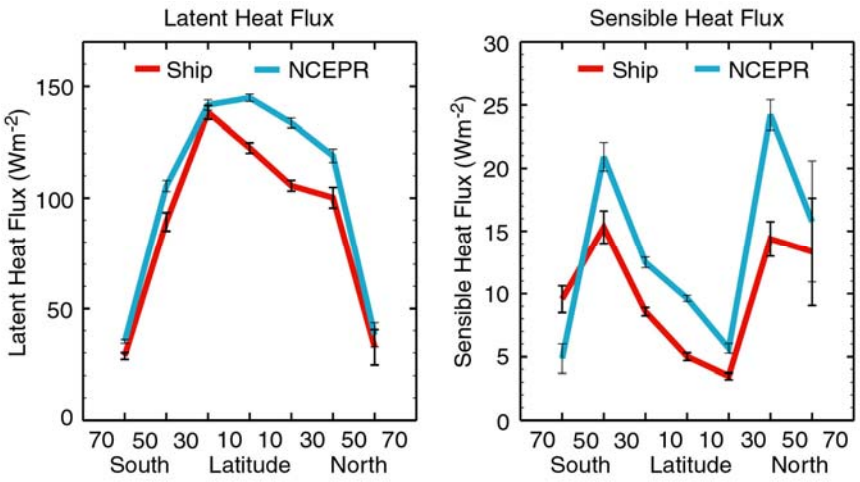
- One-minute samples bundled in daily email messages
- Automated processing merges data with extensive vessel metadata (based on VOSClim)
- Routine data quality evaluation
  - Fully automated QC for preliminary data
  - Visual inspection (daily and research)
  - Shore-side data monitoring and feedback to technicians at sea
- Distribution via web, ftp, and OPeNDAP servers
- Archival agreement in place with NODC
  - Monthly transfers to archive
  - Planned inclusion into ICOADS



SAMOS Data Applications

- SAMOS observations provide benchmark data for:
  - Validation studies (e.g., global model fields, satellite observations)
  - Air-sea flux fields
    - Providing sampling rates and accuracy desired for estimating air-sea fluxes
    - Providing direct solar, IR, and PAR flux
  - Allows independent assessment of biases in marine observations assimilated into global models.
  - Future applications include:
    - Validation of Aquarius and SMOS salinity sensors
    - Developing better satellite retrieval algorithms
    - Constraining flux in remote oceans





New Initiatives (1)

- U.S. Rolling deck To Repository (R2R)
  - NSF initiative that will fundamentally change data stewardship for university operated research vessels
  - Protocol to transfer full resolution data to central repository
    - Navigation, meteorology, oceanographic, seismic, bathymetry, etc.)
    - End of cruise delivery
    - Users come to repository to obtain data
  - COAPS funded by NSF to develop near-real time component
    - Sub-set of navigation, meteorology, oceanographic data will be transmitted daily or at shorter interval
    - Opportunity for VOS access to these data (must pull from repository)
  - SOT input on near-real time data access protocol highly desired
    - COAPS can collaborate with NMS to develop tools

New Initiatives (2)

- Automated metadata transfers
  - As part of R2R project, COAPS funded to automate ship-to-shore metadata transfers
  - Focus will be on instrument metadata (rapidly changing)
  - Take advantage of existing shipboard digital storage of metadata
  - Need to identify critical metadata for each parameter
  - Determine exchange format (SensorML, MarineXML, etc).
  - Set delivery schedule

- All interested parties are welcome to contribute
  - Meta-T has shown interest
  - Include vessel technicians, software developers, operational and climate users

Providing Data to Operational Users

- Currently preliminary data available only via web/ftp
  - Released with automated QC ~ 3 minutes after receipt
  - Nominal receipt time 0000 UTC (depending on satellite link)

- Some members of operational community seek SAMOS data
  - Desired in format commonly used for NWP
  - SHIP (FM-13) vs. BUFR

- What is really desirable?
  - Timeliness – is hourly data to the GTS once per day sufficient?
  - Metadata – RV instruments not provided by NMS, how to certify?
  - Unique IDs – How to distinguish SAMOS and VOS reports

Operational Concerns

- Independence of SAMOS observations
  - Play a critical role for NWP validation
  - Use of “masked” call sign proposed (M2M0000-M2M9999)
  - How to implement within JCOMM structure

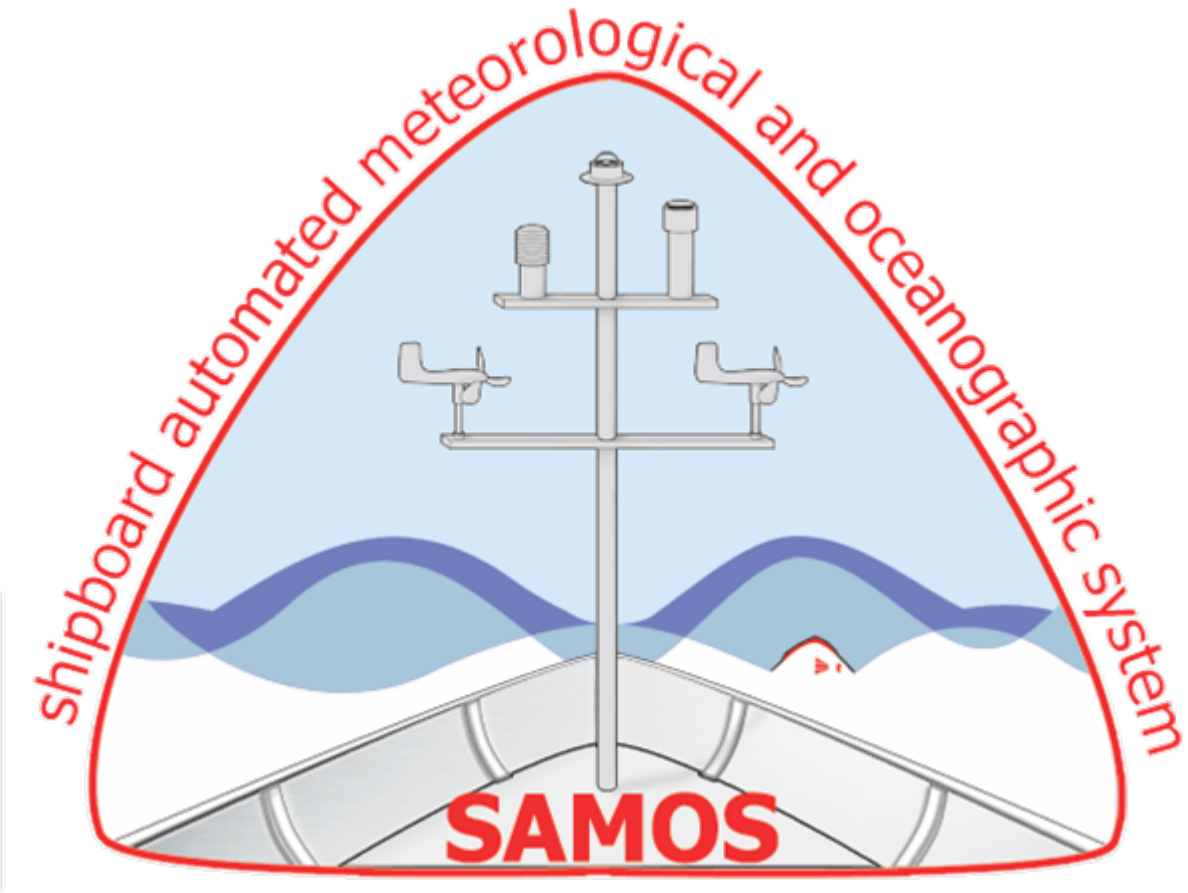
- Coordination with National Meteorological Services
  - PMOs responsible for metadata for VOS participation
  - Extensive SAMOS metadata, do not flow through NMS
  - Metadata may differ from VOS metadata for an RV

- How to leverage SAMOS activities to
  - Reduce technician workload
  - Feed data to VOS Scheme and/or onto GTS

Collaborators

- **GOSUD**
  - 2nd Joint Workshop held in June 2008
  - Outlined scientific need for continuous underway oceanic and atmospheric observations from ships
  - Identified ocean regions where additional sampling needed
- **IMOS**
  - Underway ship flux project of IMOS adopted SAMOS data stewardship practices
  - Conducting parallel QC for Australian RVs
- **NOAA ESRL**
  - Continues to deploy portable comparison standard instruments
  - Conducted comparisons on USCG *Healy* and RV *Knorr* in 2008
- **MATE**
  - Developing knowledge and skills guidelines for Oceanographic Observation Technicians

Questions?



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