Review of the Marine Climatological Summaries Scheme (MCSS)

Focus on Modernization

Scott Woodruff

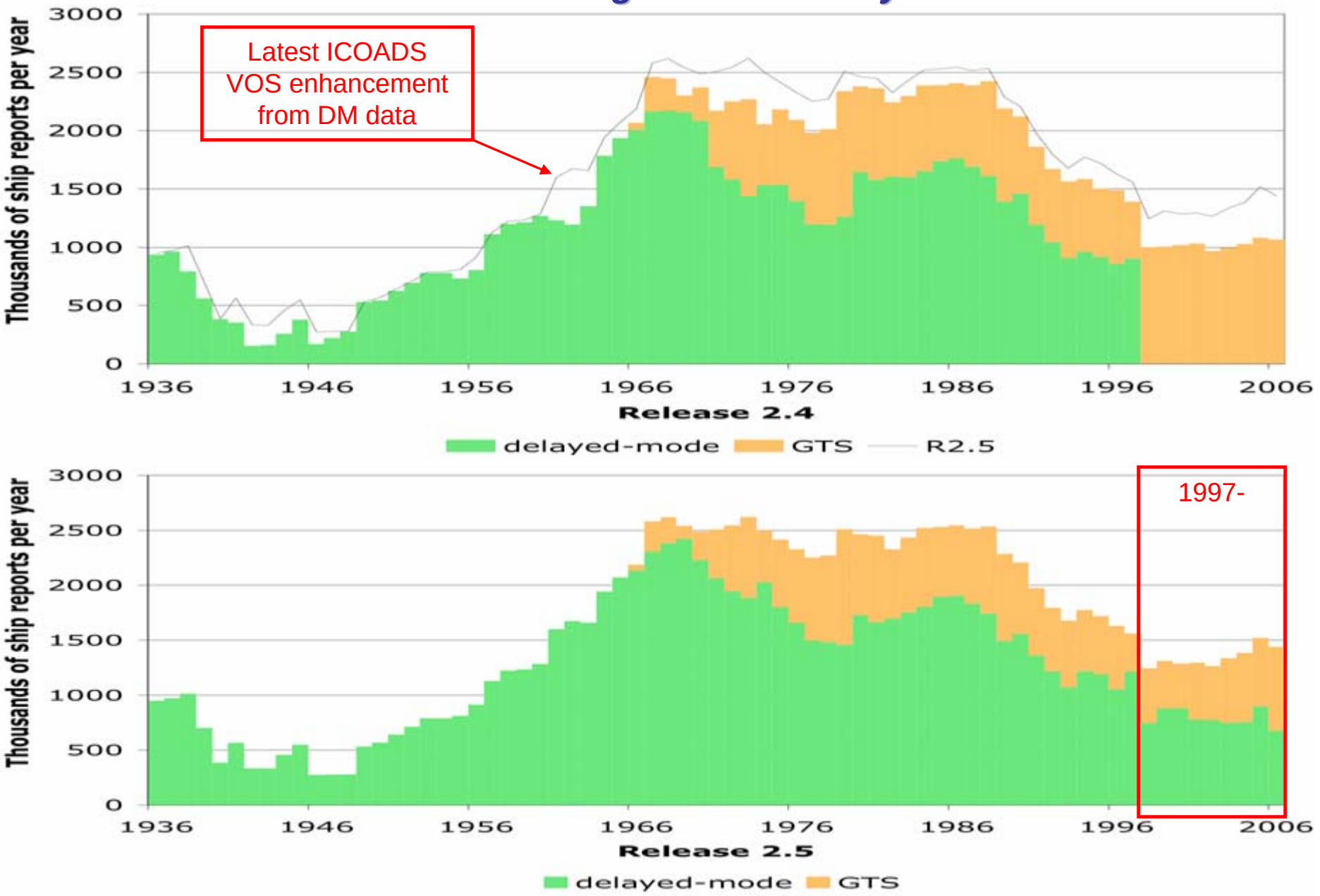
Chair, Expert Team on Marine Climatology (ETMC)

(NOAA Earth System Research Laboratory)

SOT-V
Geneva, 18-22 May 2009

jcomm
OCEANOGRAPHY & MARINE METEOROLOGY

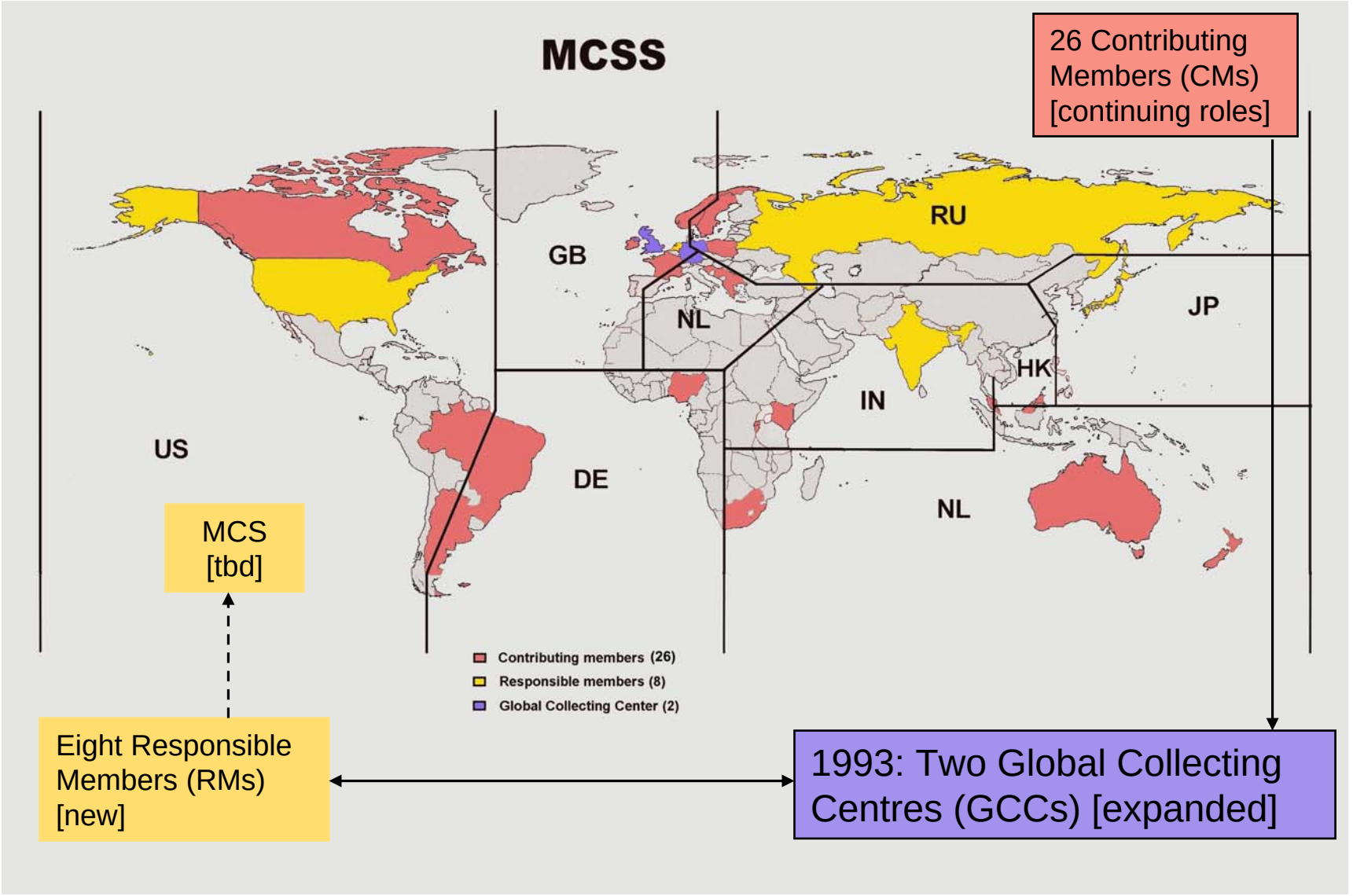
Motivation: Continuing Value of Delayed-mode VOS



MCSS Background

- Two longstanding components (est. 1963)
  1) Delayed-mode VOS data management (IMMT, MQCS, GCCs)
     - Note: MCSS now archives some non-VOS data
  2) Summaries (MCS): tabular/graphical products
- Modernization started 2007 via two new Task Teams
  1) Delayed-Mode (DM) VOS data: TT-DMVOS
  2) Marine-met. and Oceanographic Climatological Summaries: TT-MOCS
- Joint TT meeting May 2008
  - ✓ links developing with WIS/WIGOS and ICOADS
    - International Comprehensive Ocean-Atmosphere Data Set

Existing data mgmt. scheme:
[anticipated modernized roles]



(1) Cross-cutting TT-DMVOS

- Major task areas
  - streamline data flow -- incl. GCCs
  - manage/update IMMT & MQCS
- Explore possible convergences
  - IMMA format (oper. for ICOADS)
    - ✓ high-res. lat/lon and wind
    - ✓ Pub. 47 metadata fields
    - ✓ preserves original data
  - other QC (e.g., ICOADS, NWP)
  - GTS
  - SAMOS and GOSUD

Membership

- ETMC:

✓ GCCs as two Co-chairs

✓ Plus RMs on ETMC, etc.

- SOT

✓ Chair + VOSPanel Chair

✓ SOOP, ASAP, etc.

- US NOAA/NCDC (E. Freeman)
- SAMOS (S. Smith)

Reporting mechanisms

- Project plan for next 3 years (completed in Aug. 2007)
- Reporting to ETMC and SOT

✓ unified website planned

Proposed Convergence with IMMA format

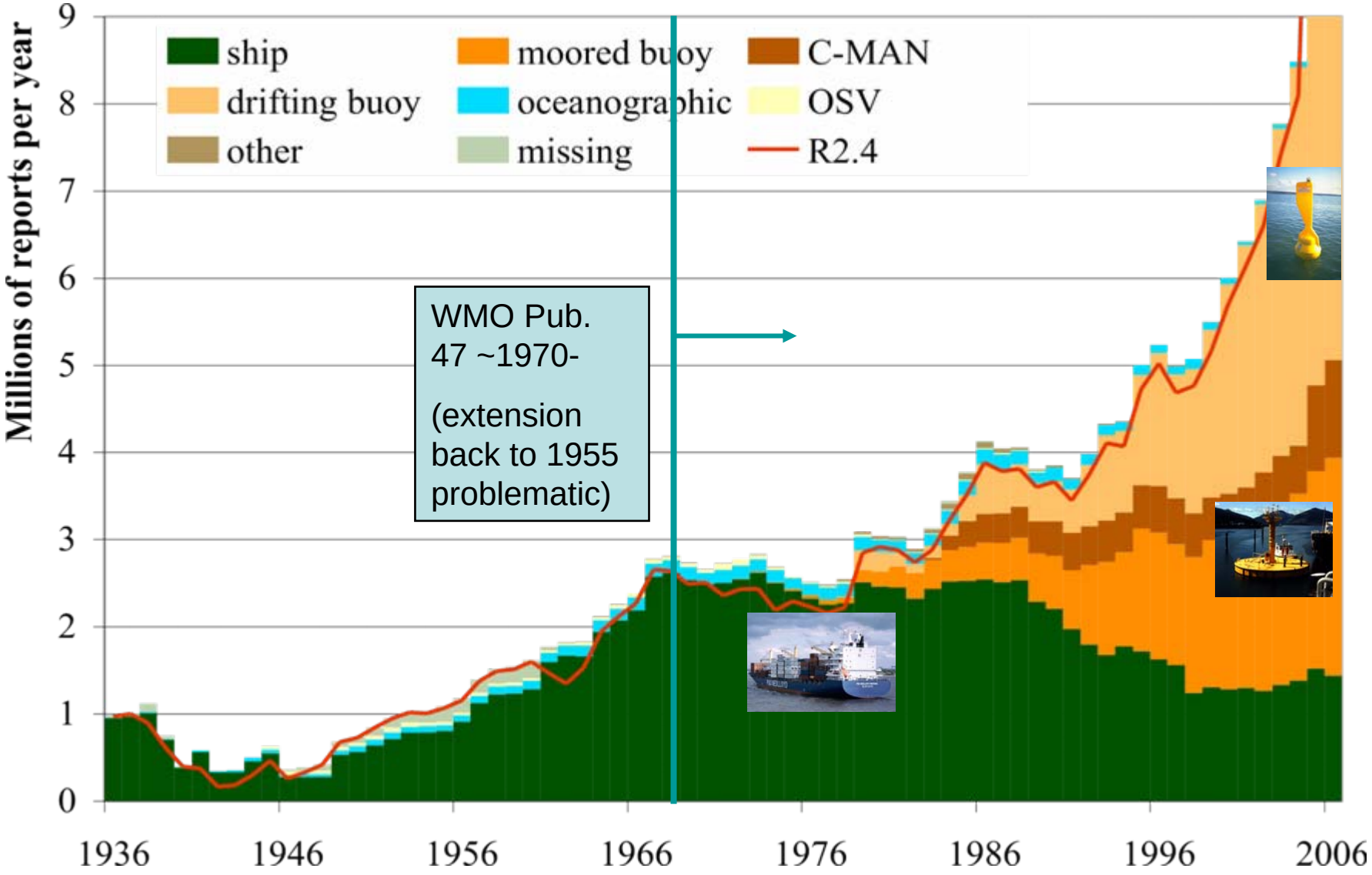
- Simplicity: Members can process/manipulate
- Use ASCII and eliminate complex encodings
  - ✓ e.g., numeric mixed with “+”, “/”; quadrant
- Flexibility & extensibility
  - ✓ e.g., for historical fields w/o exact modern equivalent
  - ✓ Note: MCSS initiated with provisions for pre-1963 data
- Abbreviated (“core”) record type useful
  - ✓ BUFR physical format not appropriate
  - ✓ Consider convergence w/ BUFR table information

IMMA record types: “core” + optional attachments:

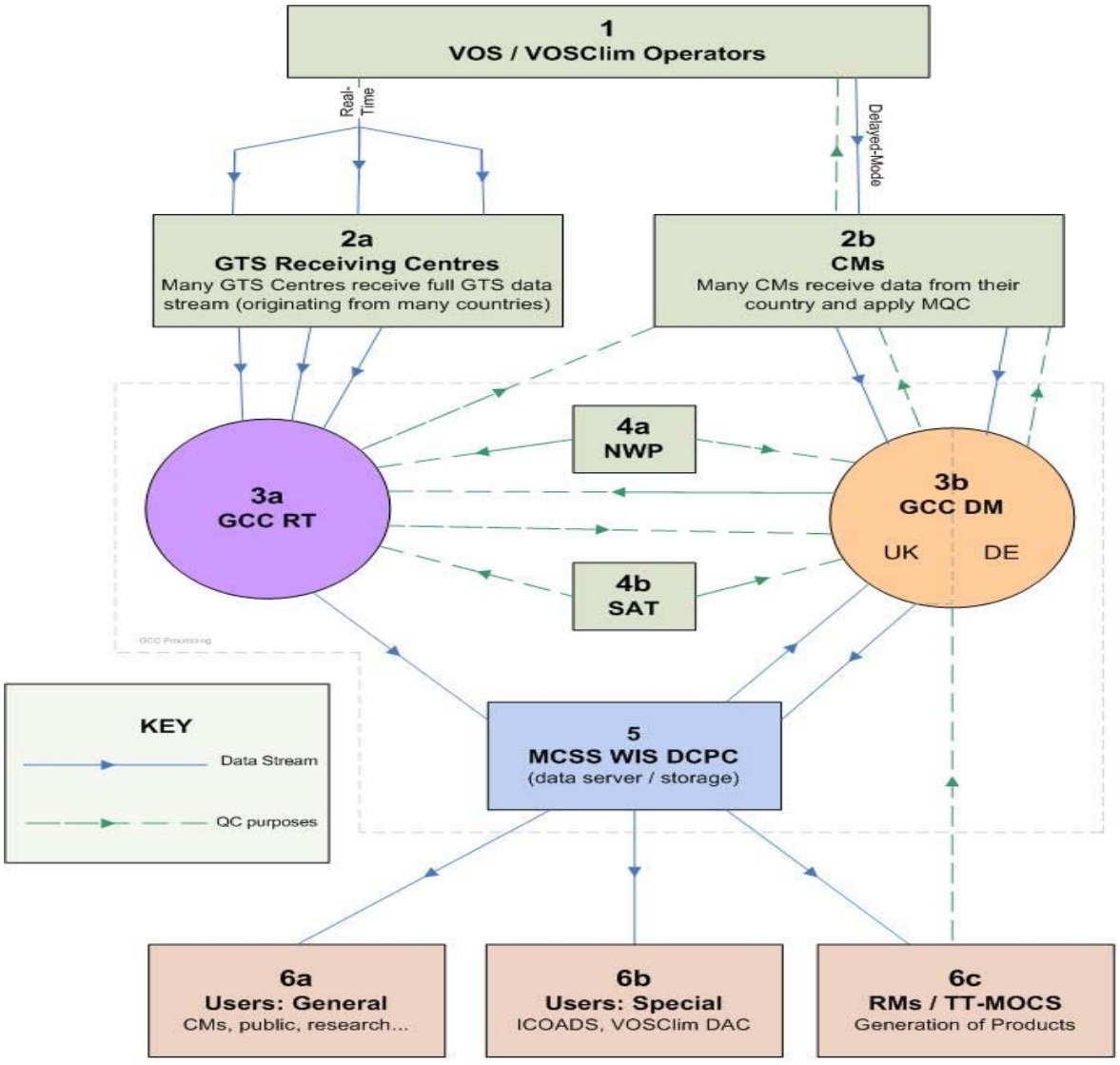
core | icoads | immt | meta | model | suppl

ICOADS recent data/metadata mix

DM and RT GTS data in IMMA



Proposed MCSS data mgmt.



Major elements

- Add GTS data
  - ✓ via new or revised GCC role(s)
- Higher QC standard
  - ✓ w/ NWP/SAT
- Unified data access
  - ✓ WIS/WIGOS
- Other links
  - ✓ ICOADS
  - ✓ VOSClim DAC
  - ✓ TT-MOCS

Proposals for Expanded GCC Role(s)

- Become more proactive in working with CMs
- GTS data & related issues (secure environment)
  - ✓ resolution of call sign masking
  - ✓ access to Lloyd's (commercial) "ship particulars"?
    - IMO no. (or historical precursor)
    - tonnages, dimensions, superstructures
- Possible blending of WMO Pub. 47 metadata

Lloyd's (LRF, LMIU) discussions facilitated by IMO

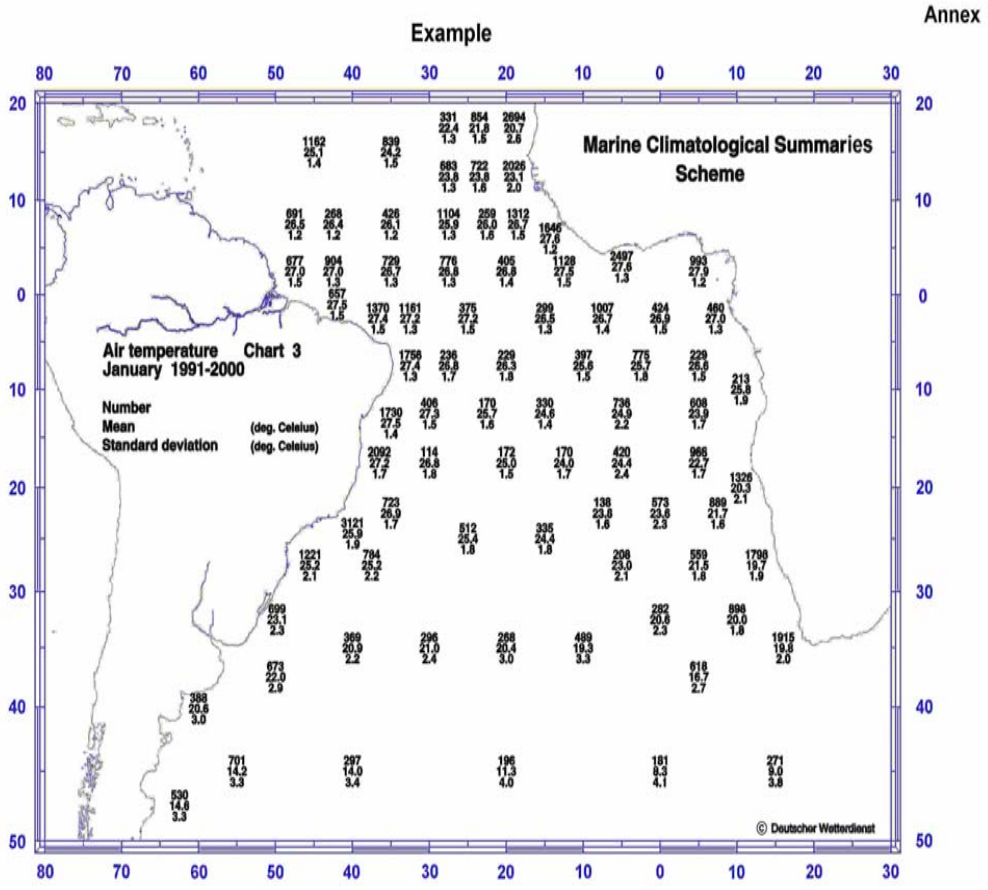
- IMO uses ICOADS--interest in IMO number (recently in Pub. 47)
- Lloyds (LMRF/LMIU) some info back to 1764 (but maybe realistic only to go back ~4 years due to deletion of call sign info)
- Possible proposal to Lloyd's Charitable Trust

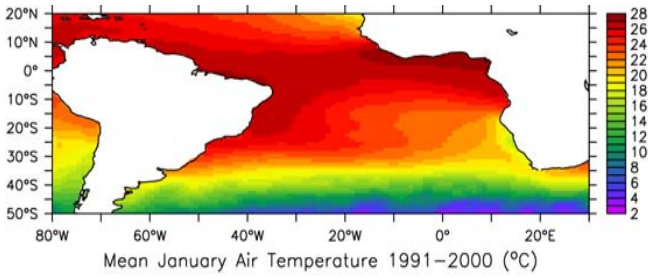
(2) ETMC TT-MOCS

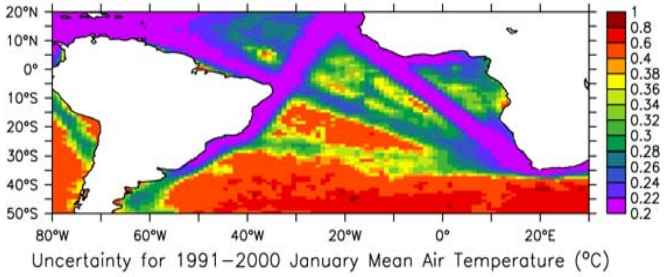
- Ad hoc WG drafted ToR (August 2007)
- JCOMM-II (2005): Urged ETMC to examine how marine, oceanographic, and ice climatologies could be "coordinated so as to been seen as an integrated product."
  - ✓ Anticipated future cross-cuts with SPA (ETWS and ETSI)
- Link with TT-DMVOS on proposed HQCS
  - ✓ advanced QC climatologies, etc.
- Martin Rutherford (AU) (acting Chair)
  - make products more readily discoverable through product and services level metadata
  - and accessible through the use of modern web services technologies

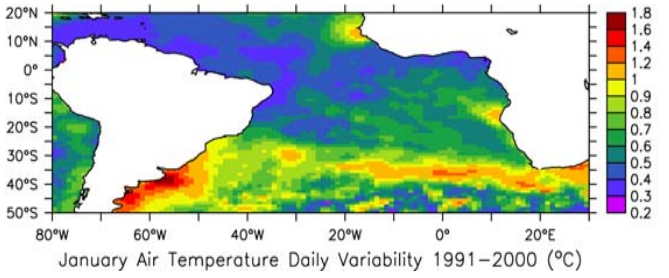
MCS Decadal Summaries

Mandated by *Manual/Guide to Marine Met. Services*
produced irregularly/not by some RMs







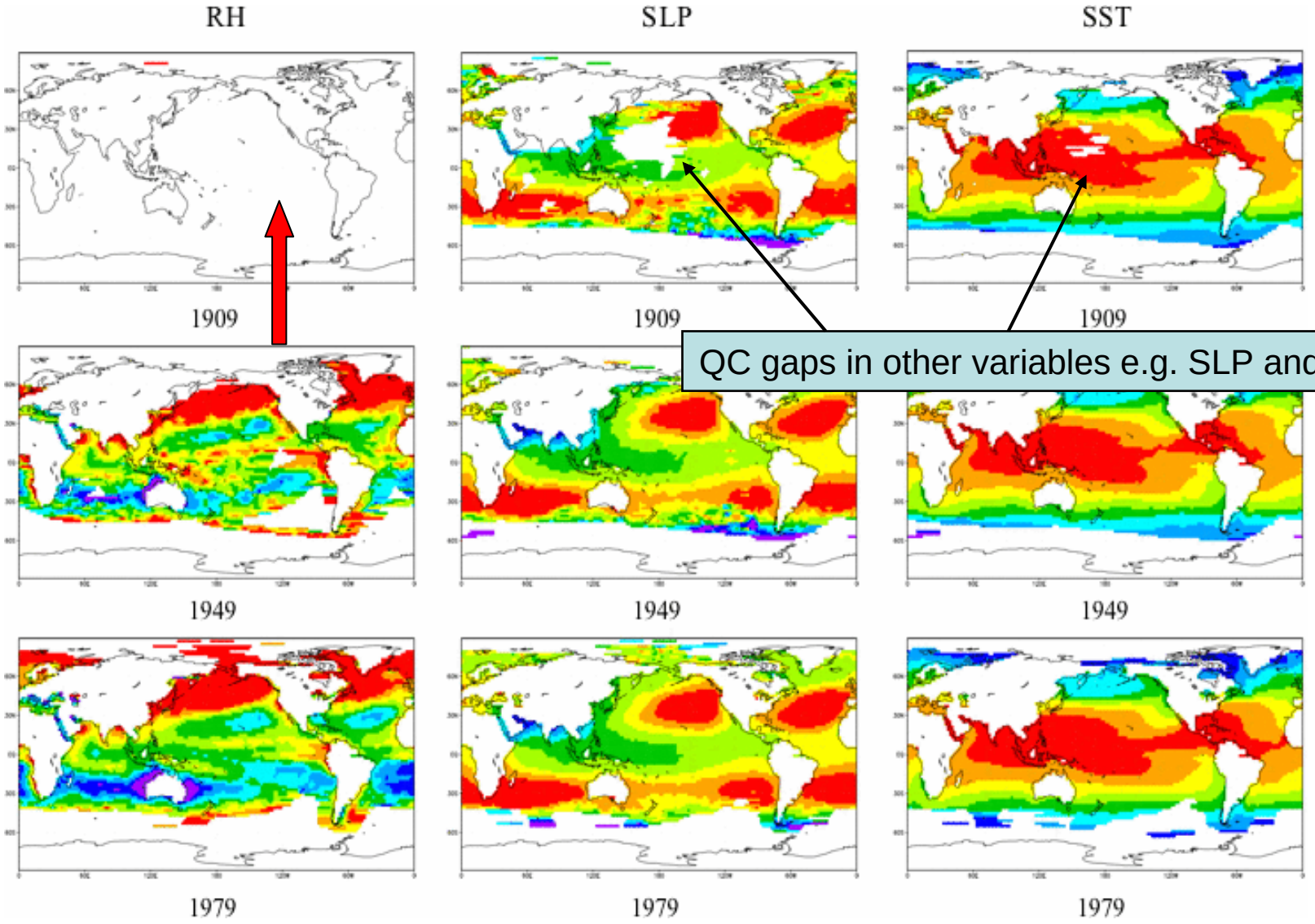


Future products also need to incorporate info on data density and uncertainty

Contrast modern flux products

Berry and Kent 2009

Gaps in historical QC climatologies for ICOADS; problem: newly rescued data can fall over gaps



"Surface In Situ Datasets for Marine Climatological Applications," Selected Recommendations:

- Support historical data/metadata rescue & integration
  - include buoy/ODAS
  - need for enhanced metadata access (JCOMM)
- Support modernization by TT-DMVOS & TT-MOCS
- Ensure that migration to BUFR does not compromise the quality of climate archives
  - Preserve all data as originally reported
  - Improve validation to ensure accurate representation of reported data
  - New codes: consider requirements for data continuity

Community White Paper:
OceanObs09 Conference: 21-25 Sep, Venice

SOT-V: proposed Recs. & Actions

- Rec. (i): SOT to continue active role with TT-DMVOS
  - Also engage with TT-MOCS
- Rec. (ii): Endorse IMMT-IV & MCQS-VI revs.:
  - Comment on proposed revisions to 41 Obs. platform?
  - GCCs ingest previous IMMT versions; upgrade “encouraged”?
- Suggested actions

  (1) We plan to consider appropriate GCCs archive formats taking into account IMMA format (e.g. could GCCs output IMMA?)

  (2) Discuss new data flow -- feedback to TT-DMVOS and GCCs (note: useful progress anticipated by 2010)

  (3) Provide views on HQCS

  (4) Desirability of new name(s) to replace “MCSS”?

Proposed revisions to IMMT field 41 Obs. platform (for IMMT-IV; JCOMM-III)

0 - unknown

1 - Selected ship

2 - Supplementary ship

3 - Auxiliary ship

4 - Automated weather station (AWS) (note: formerly also "data buoy," usage now discontinued)

5 - Fixed sea station (e.g., rig or platform)

6 - Coastal station

7 - Aircraft [delete]

8 - Satellite [delete]

9 - Others (including data buoys?)

Accurate determination and archival of platform type is of crucial importance for interoperability e.g. with ICOADS

Conclusions

- OceanObs'09 Conference: 21-25 Sep. 2009, Venice
  - Viewed as major driver for future ocean data management
  - Related CWPs and Posters:
    - *ICOADS, VOS*, *VOSClim*, *SAMOS*, buoys, *Metadata*, etc.
- MCSS and ICOADS: interoperability should be explored
  - efficiencies possible from leveraging developed methods
  - QC: urgent historical and non-VOS problems also exist
  - reanalyses can offer feedbacks, in addition to NWP/SAT
- Plans for eventual "Climate ICOADS" initiative
  - bias adjustments -- value-added products