VIIRS in RTG SST HR

Robert Grumbine, Bert Katz
RTG Data Sources

• In Situ
  - Buoys, Ships, CMAN, (to come: ARGO, Walrus, …)

• Satellite
  - AVHRR — L1b — physical retrievals (NOAA-18, 19; Metop A, B)
  - GOES-13,15 — L3 — NESDIS composited retrievals
  - VIIRS — L2 (to come) — High resolution retrievals (~1 km)
  - AMSR2 — L2 (to come+1) — Microwave (large footprint, but see through clouds)
RTG Analysis: Grids

- Being retired — half degree
- Operational — 1/12th degree, 5 arcmin, ~10 km
  - Future — N. America at 2.5 km?
- Masking via bounding curves to arbitrary target
- Daily average, buoy depth
  - Future — buoy depth and ?skin temperature
  - Future — resolve diurnal cycle (6 hrs or more frequent analysis)
L2 ACSPO -- SST Retrievals
GHRSSST (CF 2.0) NetCDF
Rely on SSES
BUFR
NWS Operations
Challenges of volume + format
Verification

33 subdomains
5 repeated, independent, analyses with 20% of in situ withheld
Score against withheld data
Bernoulli trial assessment
Verification -- NH extratropical

NOAA/NWS/NCEP/EMC Marine Modeling and Analysis Branch
ENSEMBLE VERIFICATION: VIIRSNOBIAS RTG_SST_HR-minus-buoy Statistics

VIIRSNOBIAS
RMSD 0.911375 (55)
Bias 0.0451786 (35)

OFRNL
RMSD 0.978018 (1)
Bias 0.0562957 (18)

Lat: 30N - 90N  Lon: 180W - 180E

02:12:04 THU AUG 17 2017
N. Atlantic

NOAA/NWS/NCEP/EMC Marine Modeling and Analysis Branch

ENSEMBLE VERIFICATION: VIIRSNOBIAS RTG_SST_HR–minus–buoy Statistics

VIIRSNOBIAS
RMSD
0.960464 (52)

Bias
0.0947857 (29)

OFRNL
RMSD
1.01063 (4)

Bias
0.0988821 (27)

Lat: 30N – 90N  Lon: 95W – 0E
NW Atlantic

ENSEMBLE VERIFICATION: VIIRSNOBIAS RTG_SST_HR–minus–buoy Statistics

VIIRSNOBIAS
RMSD 1.23384 (50)
Bias 0.30425 (25)

OPRNL
RMSD 1.29527 (6)
Bias 0.292518 (29)

Lat: 30N - 45N   Lon: 80W - 40W
SH Extratropical
Conclusions

Clear winner
Implementation ~Fall 2017
Thank you