ESA Climate Change Initiative Phase 1

Sea Surface Temperature (SST)

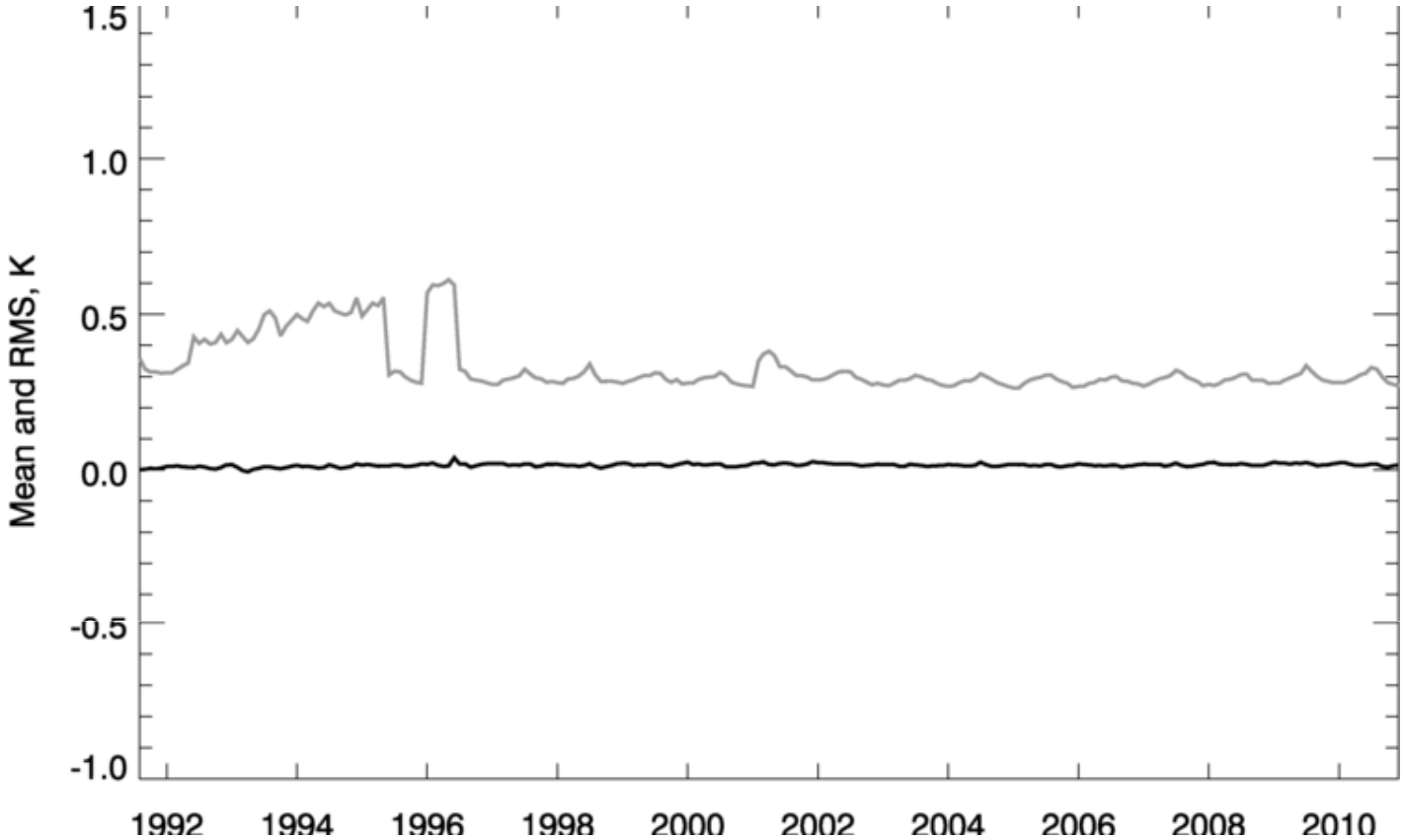
SST CCI Progress

Chris Merchant

Since collocation …

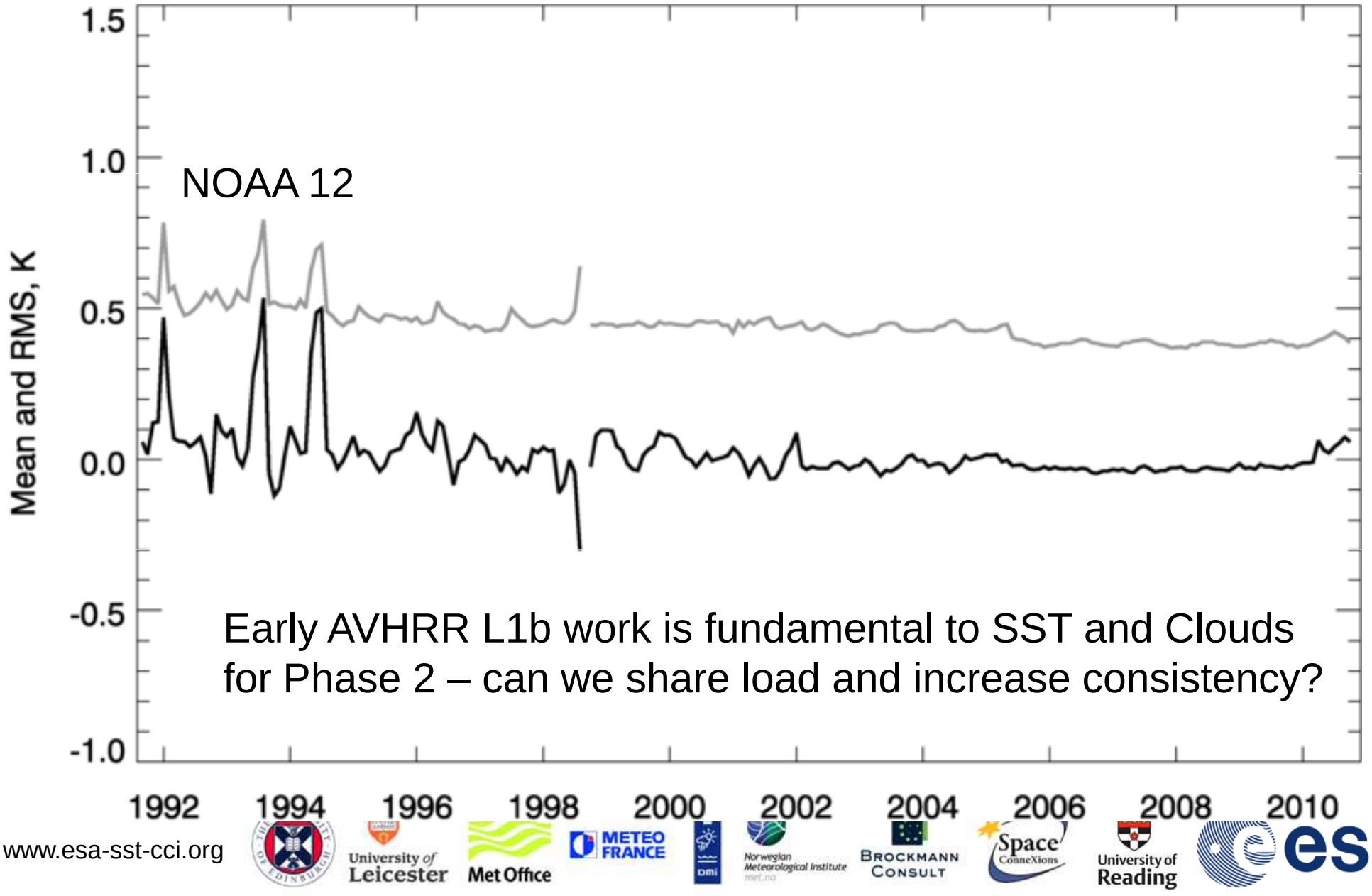
- Completion of prototyping
- Generation of SST CCI products
  - AVHRR L2 1991 – 2010
  - ATSR L3 (daily 0.05 deg) 1991 – 2010
  - Joint AVHRR / ATSR L4 (daily 0.05 deg) 1991 – 2010
- Verification underway
  - Metadata validity
  - Content integrity
  - All levels
  - Traced to relevant requirements

Verification example



Obs – Bkgd for ATSRs during OSTIA analysis

Verification example 2

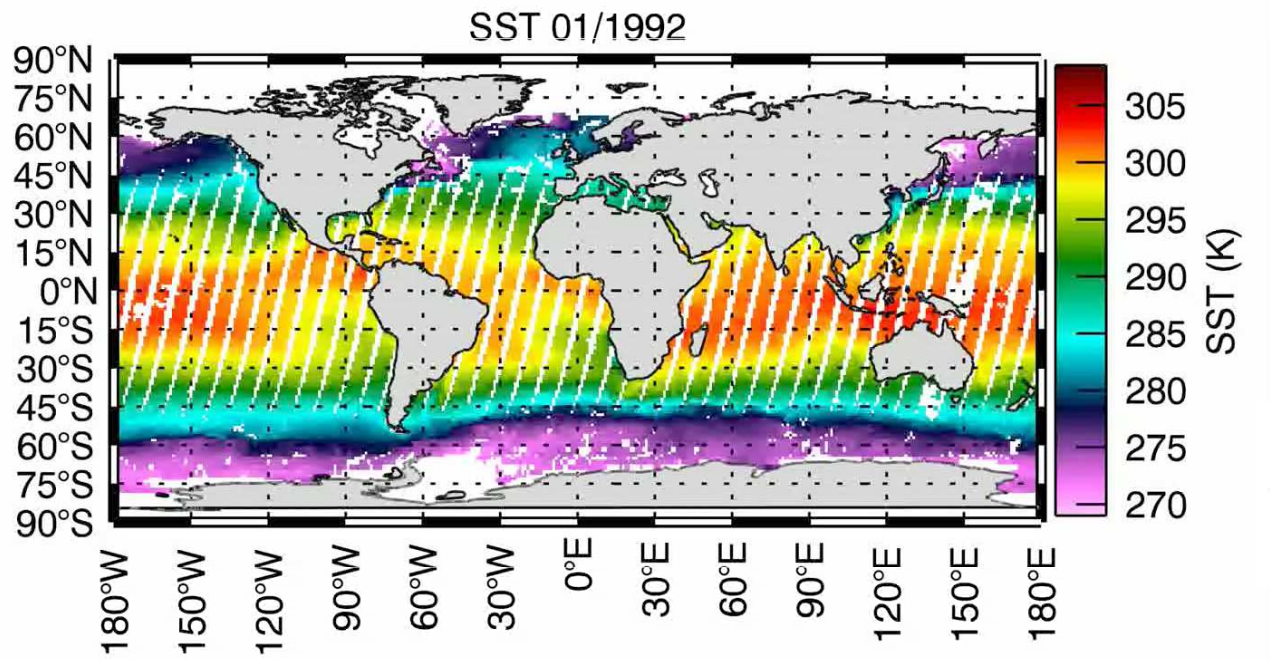


Since collocation …

- Documents
  - SPD
  - SSDv0
  - ATBDv1 and ATBDv2
  - PUG
  - UCR
- Uncertainty Characterisation Report
  - Reviewed by metrologists at NPL interested in EO
  - Supported approach to uncertainty estimation and propagation through levels
  - Improved the language (clarity) around description of uncertainty
  - **Q: would getting formal metrological review of UCRs help whole programme?**
- Engaged UncertML
  - Seem to have reached a stalemate
  - Working with Poulsen (Clouds, Aerosols) on standardising uncertainty language
  - Will propose to CCI community and then to CF-convention

Under NCEO funding

- ARC / SST CCI dataset prepared for obs4MIPS
  - Monthly, 1 deg version of data



SSTs from Along Track Scanning Radiometers, as 1 degree monthly averages

"obs4MIPS"
version of ARC/SST-CCI results

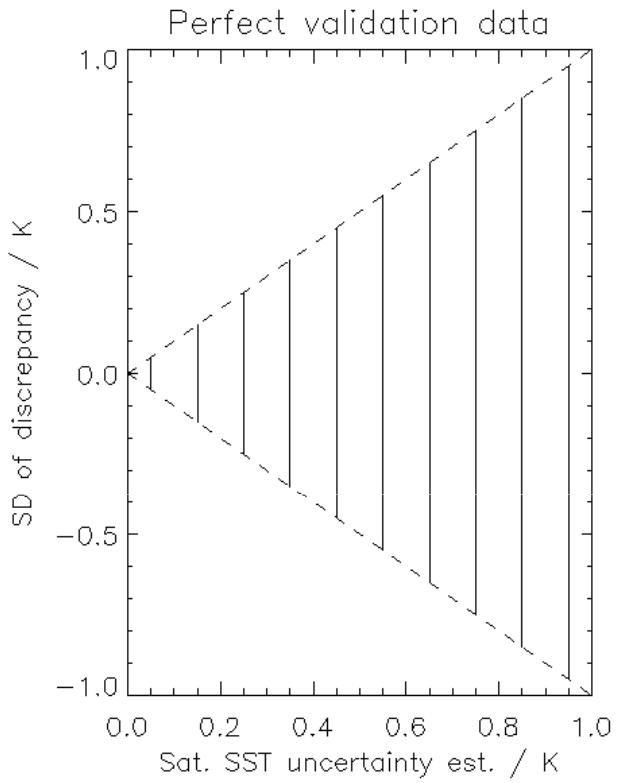
ARC SST

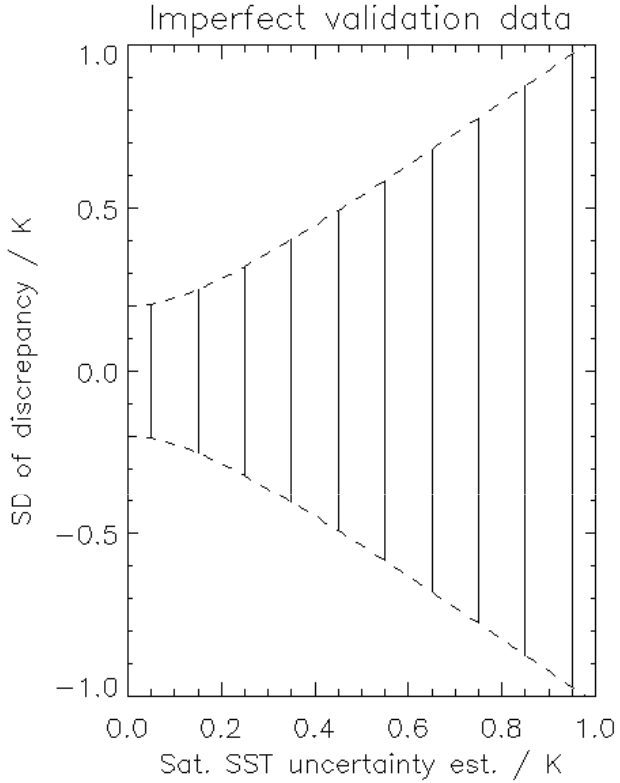
National Centre for Earth Observation
NATURAL ENVIRONMENT RESEARCH COUNCIL

University of Leicester · Met Office · METEO FRANCE · DMI · Norwegian Meteorological Institute · Brockmann Consult · Space ConneXions · University of Reading · esa

Coming next … Validation

- Validation of SSTs
  - Drifting buoys, GTMBA, Argo etc
- Validation of SST uncertainty estimates





Climate Assessment

- Climate Data Research Package on CEMS/Jasmin
- Advertised at EGU
- CRG will
  - analyse trends and variability
  - look at standard indices (e.g., ENSO) in SST CCI data
  - assess stability
  - assess application within Hadley Centre model assessment framework
  - compare feature structures with those in OC CCI
- CRG has also organised other “volunteer” trial applications of SST CCI data in climate context

Planned Met Office Hadley Centre projects

- Malcolm Roberts
  - Replicate current high resolution (0.25˚) atmosphere-only simulations driven by OSTIA reanalysis v1.0
- Mark Ringer
  - AMIP simulations – explore the hydrological cycle in AMIP-style simulations (130km resolution) forced with SST_cci L4 analysis rather than current AMIP SSTs
- Mark Ringer/Nick Rayner
  - Exploring the links between different observations of the hydrological cycle and SST. Look for any differences in results when using SST_cci products vs other SST data.
- Alberto Arribas
  - Use SST_cci L2P and L3U products 2000-2010 in ocean hindcast reanalysis for seasonal forecasting and compare to current operational hindcasts by looking at O-B statistics

Overview

- Progress on data and verification side
- On track for completion of Phase 1 Nov 2013
- Looking forward to validation and climate assessment
- Looking forward to tackling 1982 to 2016 in Phase 2