ESA Climate Change Initiative Phase-II
Sea Surface Temperature (SST)
www.esa-sst-cci.org

System status
Chris Merchant
How SST CDR system will operate

Software evolution and R&D can be managed
Porting to JASMIN/CEMS at Harwell

- Phase I system was distributed at 4 locations
- Integrating all L1 → L4 systems at CEMS will support
  - end to end process control
  - computing next to full data archives
  - access to Sentinel-3 data stream in future
SST Processing System

NWP (ERA Interim) → L1b ATSR → Cloud Detection & SST Retrieval → L2P + L3U ATSR SST → “OSTIA” optimal interpolation → L4 SST

L1b AVHRR → Improved calibration → L1c AVHRR

Algorithm Development

Multi-sensor Matchup System (MMS) → in situ SST validation

Diurnal Variability

Product Validation & Inter-comparison

System Verification
SST Processing System

- **NWP (ERA Interim)**
- **L1b ATSR**
  - Improved calibration
  - L1c AVHRR
    - Cloud Detection & SST Retrieval
- **L1b AVHRR**
  - Algorithm Development
  - “OSTIA” optimal interpolation
    - L4 SST
- **Diurnal Variability**
- **L2P + L3U**
  - ATSR SST
- **L2P AVHRR SST**
- **in situ SST validation**
  - Multi-sensor Matchup System (MMS)
    - Product Validation & Inter-comparison
      - System Verification

**Integrated and automated today**
SST Processing System

NWP (ERA Interim) → L1b ATSR → Cloud Detection & SST Retrieval → L2P + L3U ATSR SST → “OSTIA” optimal interpolation → L4 SST → L2P AVHRR SST → Algorithm Development → Multi-sensor Matchup System (MMS) → in situ SST validation → Product Validation & Inter-comparison → System Verification

Diurnal Variability → L1b AVHRR → Improved calibration → L1c AVHRR

Integrating and automated by November 2015
SST Processing System

- NWP (ERA Interim)
- L1b ATSR
- L1b AVHRR
  - Improved calibration
  - L1c AVHRR
  - Cloud Detection & SST Retrieval
- Diurnal Variability
- L2P + L3U ATSR SST
- "OSTIA" optimal interpolation
- L4 SST

- L2P AVHRR SST
- Algorithm Development
- Multi-sensor Matchup System (MMS)
- in situ SST validation
- Product Validation & Inter-comparison
- System Verification

Integrated and automated by April 2016
Ongoing processing: I/P data drives timeliness

Download Metop FRAC (CEDA) 0 month lag 3 monthly

Download AVHRR GAC (UoR) 0 month lag Monthly

Download ERA Interim (CEDA) 3 month lag Monthly

Download OSI-SAF SI (UoR) 0 month lag As needed

L1c process

L2p process

L4 process (UKMO)

L3C regrid

ERA Interim fixes timeliness
Could evolve system to short delay ICDR using analysis NWP
Summary

- Fully integrated, maintainable system at CEMS
- System from L2 to L3 is integrated for routine, reliable processing now
- Level 4 component being integrated – completion and testing over next 6 months
- Input data stream access determines timeliness
- System capable of 2 day timeliness with some evolution including use of “interim climate data records”
  - same processing as CDR, but on interim input data streams
  - periodic reprocessing as part of routine processing schedule