Newsletter

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2-2015

Foreword from the Project Director

"Welcome to our latest GlobTemperature newsletter. The project team have worked very hard to build a useful data portal where data sets are now available in a common format (harmonised) for the first time. Please do try them and give us feedback. We intend to significantly expand the number of data sets available over the coming year. I would particularly like to commend UCM #3 in June to you. For your convenience we have aligned this with a number of other meetings in Reading so there will be many good opportunities to interact with colleagues. We hope at this meeting to tell you also about our new merged products. In this newsletter you will find a brief summary of the User Requirements analysis that has been done following UCM #2 and a link to the report; it is excellent and worth looking at. Many thanks for your enthusiasm in working with us. We hope we can support your work through the coming year."

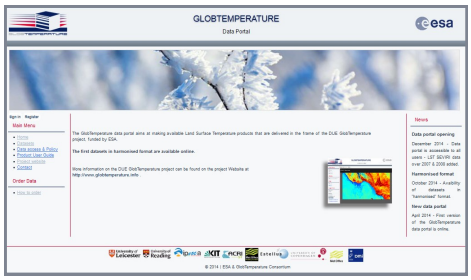
John Remedios (Project Director)

Upcoming Events: UCM #3

The 3rd User Consultation Meeting (UCM #3) will take place from 11th to 12th June 2015 at the University of Reading, UK, and will be collocated with the 4th EarthTemp Network Meeting (which will focus on urban areas) and the 6th LSA SAF Workshop.

GlobTemperature Data Portal Open: First Datasets

The GlobTemperature Data Portal went live on 12th December 2014. The objective is to provide a "one-stop-shop" for all Land / Lake and Ice Surface Temperature (LST / LSWT / IST) and Emissivity data products for the user community (data.globtemperature.info).



The first datasets are now online:

- AATSR L2 + L3 (2002 - 2012)
- SEVIRI L2 (2007 - 2013)
- SSM/I L2 (2003)

The data catalogue will be progressively and continuously expanded as new datasets are added, and will be supported beyond the lifetime of the project. A suite of data visualisation tools will be made available in due course.

User information is provided in the accompanying Product User Guide (PUG), which facilitate users in their exploitation of the GlobTemperature product suite in a user-friendly manner and includes information on:

- Data format and Naming
- Product structure
- Quality Control
- Product heritage
- Best practices for selecting the required data

All datasets available from the GlobTemperature Data Portal are free and open.

The Data Portal is an addition to the existing website which will continue to be a resource for Breaking News; Upcoming Events; and documentation. Contact email for information:

info@globtemperature.info

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LST Datasets: Now Available on the Data Portal

AATSR

The GlobTemperature Advanced Along Track Scanning Radiometer (AATSR) product primarily provides data on LST (Figure 1), its associated uncertainty, and quality control information for the period 20/05/2002 – 08/04/2012 .

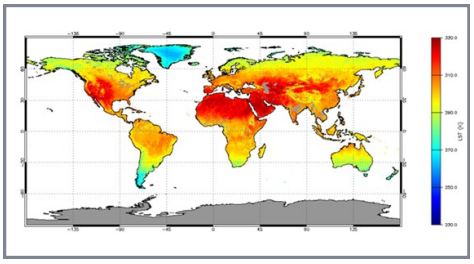

Figure 1: GlobTemperature global AATSR LST

The Level-2 product (GT_ATS_2P) is available at a spatial resolution of 1 km, and the Level-3 product (GT_ATS_3P) is available at 0.05° spatial resolution on a daily basis.

Key strengths of the dataset are:

- Highly accurate instrument
- Long time-series (when used in conjunction with other ATSRs)
- Full uncertainty budget
- Enhanced cloud detection
- Sea-ice retrievals (Figure 2)

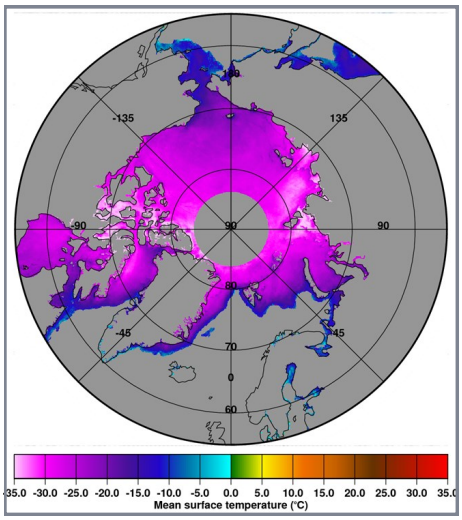

Figure 2: GlobTemperature AATSR IST over sea-ice

Contact Darren Ghent for information: djg20@le.ac.uk

SEVIRI

The hourly GlobTemperature LST data (Figure 3) derived from SEVIRI/Meteosat is entirely based on the LST generated within the EUMETSAT Satellite Applications Facility on Land Surface Analysis (LSA SAF product LSA-001). The GlobTemperature product is available on a 0.05° regular grid.

Key strengths of the dataset are:

- Medium resolution instrument (3 km at sub-satellite point)
- Description of LST diurnal cycle (hourly product)
- LST uncertainty available from 2008 onwards

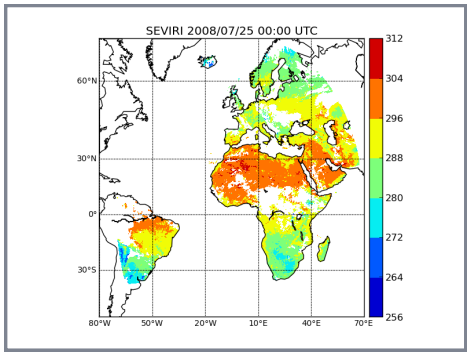

Figure 3: GlobTemperature SEVIRI LST

Contact Isabel Trigo for information: Isabel.trigo@ipma.pt

SSM/I

The daily GlobTemperature LST data derived from all available SSM/I for 2003 employs a methodology developed to estimate the LST, along with atmospheric water vapour, cloud liquid water, and surface emissivities over land, from passive microwave imagers.

Key strengths of the dataset are:

- All weather information (clear and cloudy)
- LST uncertainty information

Contact Catherine Prigent for details: catherine.prigent@estellus.fr

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Surveying User Requirements: 80 responses

User requirements for remotely sensed LST data, as with many environmental variables are continually evolving as science and technology progress.

A key objective of GlobTemperature is to liaise with the users exploiting LST, LSWT and IST data to understand their requirements, respond to feedback, and hence deliver the products the users actually want for their applications.

This process for GlobTemperature can be visualised in Figure 4.

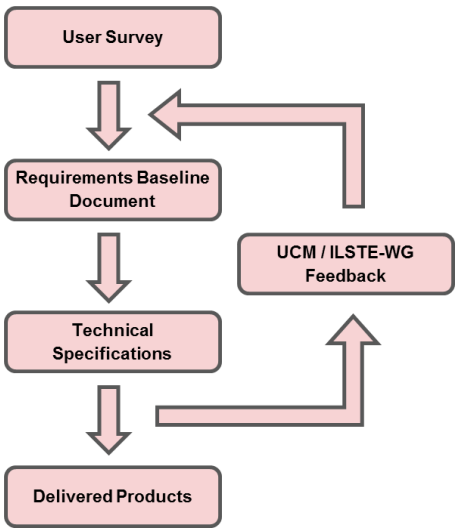

Figure 4: Iterative process of delivering user requirements

Initial User Requirements have been captured through an online questionnaire. Analysis produced a comprehensive overview of requirements for LST products. These provide a direct input into GlobTemperature product design and generation. The process is iterative with further updates being captured during the annual User Consultation Meetings.

Examples of the capture of User Requirements are illustrated in Figure 5. Here users were asked:

- If a single file specification covering all metadata requirements would aid the application to all LST data (top panel)
- Their preferred format (middle panel)
- The maximum file size they could utilise (bottom panel).

In the first example 89% of participants answered in the positive; in the second example the choice of CF-compliant netCDF formed a majority; and in the third example a file size of 200 Mb or less would enable 82 % of respondents to utilise LST data.

Hard requirements were defined for each of these, which have driven the design and development of the GlobTemperature data format which is harmonised across all directly disseminated data products.

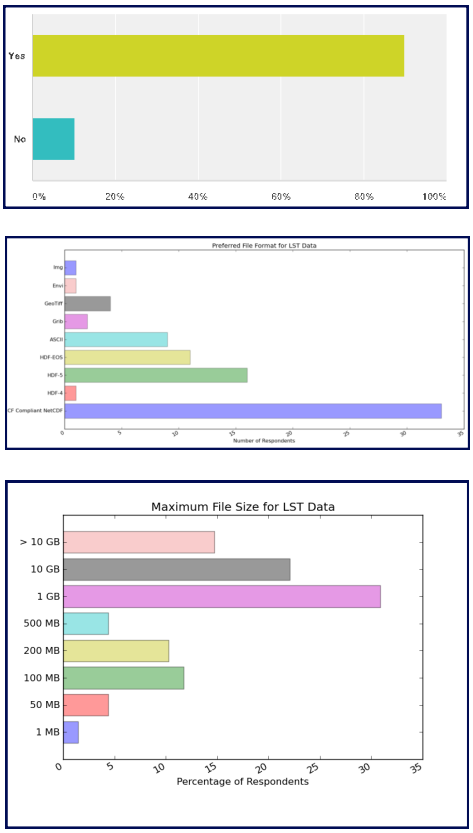

Figure 5: Examples of User Requirements capture—metadata in a single file (top); preferred data format (middle); maximum file size (bottom)

The full report is available at www.globtemperature.info.

Contact Claire Bulgin for information: c.e.bulgin@reading.ac.uk

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UCM #2: 63 participants

The 2nd User Consultation Meeting (UCM #2) was held in Karlsruhe, Germany on 25th to 26th June 2014 and hosted by the Karlsruhe Institute of Technology. The meeting provided a forum for the satellite LST, LSWT and IST communities to share experiences and review developments in satellite retrievals, validation and exploitation.

UCM #2 was well attended by users and data producers across four continents; and was collocated with both the 3rd EarthTemp Network Meeting and the 1st General Meeting of the International LST and Emissivity Working Group (ILSTE-WG) which ensured maximum benefit to the participants.

The meeting report plus the suite of presentations are available at: www.globtemperature.info.

ILSTE-WG Activities

The first year in the lifetime of this new initiative has witnessed the growth from inception to becoming truly international with much interest generated within the community of LST experts and users. Guided by the Steering Committee membership of the ILSTE-WG has grown to over 40 members.

Much activity has taken place to establish common nomenclature for LST and the concept of harmonised data formats; and to promote the ILSTE-WG within the LST data provider and user communities, with an objective to build a solid base from which to further grow and become self-sustaining.

The next General Meeting will be held at the University of Reading on 12th June 2015.

Contact Darren Ghent for details on membership: djg20@le.ac.uk

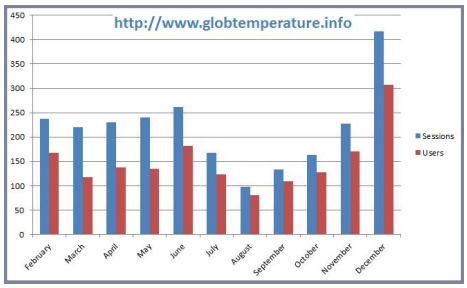
Upcoming Activities: Cloud Clearing Round Robin

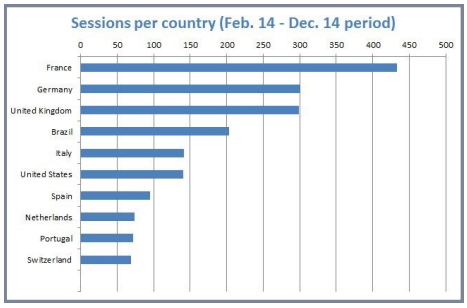
The Cloud Clearing Round Robin (CCRR) is designed to identify the best cloud detection algorithm over land for AATSR by encouraging competition between algorithm developers and comparing cloud detection skill across the globe.

It will begin on the 1st June 2015 and will take place over a 6 month period. Participation is open to everyone. A new video wall at the University of Reading will facilitate the assessment of the cloud masks.

Contact Claire Bulgin for information: c.e.bulgin@reading.ac.uk

Data Portal Statistics





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