

ISTI catch up call 2/2/17

15Z (16 CET, 10 EST)

Present on call: Peter Thorne, Kate Willett, Victor Venema, Xiaolan Wang, Robert Dunn, Manola Brunet, Blair Trewin, David Lister, Ian Jolliffe, Rachel Killick, Mareile Wolff & Elin Lundstad, Zeke Hausfather, John Christy, Matt Menne, Jay Lawrimore, Stefan Brönnimann, Hermann, Xiaomao Lin

Apologies: Colin Morice, Enric Aguilar, Jürg Luterbacher, Michael de Podesta, Lisa Alexander, Jared Rennie, Jenny Lindén, Manuel Dienst

Agreed decisions

The data rescue task team shall be retired assuming a successful completion to the Lot 1 Copernicus data rescue activity. There is little value in gross-redundancy of effort. Instead we shall ask a representative from ACRE / Lot 1 to provide an update on progress on future calls.

Data rescue task team members to be folded into databank working group unless they wish to take opportunity to retire their ISTI involvement at this stage.

Agreed actions

ACTION: Peter to follow up with data rescue task team members to ascertain whether wish to be incorporated into the databank WG.

ACTION: All to make suggestions for new members of the various ISTI teams to try to refresh and reinvigorate membership.

ACTION: Victor to take forwards developing code for benchmarks and to be point of contact for benchmarking during Kate's maternity absence.

ACTION: Steering Committee to consider advertising in an appropriate forum for new membership and activity ideas on their next call.

Slightly abridged and updated call notes follow

Agenda

1. General update

Firstly an abject apology is due as communications have been abysmal. Principal members of ISTI have been funded on other activities which makes clearing the headroom to convene meetings or spend time on the work and aims of the initiative hard. We'll return to this under item #6.

Our last call was in April 2016.

Since then we'll provide a number of specific updates to subjects below in sections 2 on.

More generically a couple of issues to update upon:

A pair of papers on DTR were published in JGR and highlighted in EOS / Nature Climate Change and on the blog (which has otherwise been largely silent - ideas for posts on the blog welcome)

The GCOS IP was published in December 2016 and includes actions that are ISTI relevant. http://unfccc.int/files/science/workstreams/systematic_observation/application/pdf/gcos_ip_10oct2016.pdf

Relevant actions are as follows:

A1 - improved NRT and historical access to the 1000+ GSN network

A2 - integrated land databank (across timescales and across ECVs)

A3 - International data exchange

A4 - transition to automatic

A6 - enhanced coverage

2. Databank update

As noted above the idea of a multi-element holding was incorporated into the GCOS Implementation Plan.

The idea was further fleshed out in a paper submission to BAMS led by Peter (currently under review) – *post-call this was accepted pending minor revisions*

A proposal that took that forwards under Copernicus Climate Change Service tender has been negotiated and is awaiting signature. The tender covers construction of multi-element holdings across timescales as well as improvements to ICOADS. Its led by Maynooth (Peter) with subcontracts to Met Office, NOC, STFC and an in-kind contribution from NCEI. It shall serve to internationalise the support underlying these fundamental in-situ holdings. Products shall be served via the Copernicus data store and NCEI. service scheduled to start 1/3 and last 4 years.

Maynooth have two PD positions advertised (closing date 19/2). If you know good candidates please point them to the adverts which are at <https://www.maynoothuniversity.ie/human-resources/vacancies/postdoctoral-researcher-x-2-205-month-contract-irish-climate-and-research-units-icarus-department>

Are there still plans for a v2 release of the databank using a more semi-quantitative approach to confirming merge decisions? There are no immediate plans for a v2 release. The focus has been on GHCN-M v4 development.

3. Data rescue update

ISTI co-hosted an ACRE meeting held in Maynooth in June.

Met Office have led a Copernicus lot bid on data rescue. Currently this remains under negotiation. Hopefully this should get started in April 2017 but pending negotiation.

There has been no specific call of this group.

Colleagues at Maynooth ran a third year course that digitised 1400 years worth of daily rainfall data for coursework (double-keyed). In principle this could be run for others. In future years' assignments temperature may be included. This is an as yet untapped route to data rescue. A methods paper is foreseen. Late 19th century to ~1950. stations in Ireland.

Within the UK Met Office funded CSSP China project, the University of Giessen is digitising subdaily meteorological data from Indochina covering the decade from 1900 to 1920. The number of stations changes from year to year (between 180 and 220). The data source includes the Indian Daily Weather Reports (IDWRs). Apart from digitisation, the digitised numerical values are quality controlled. Completed years will controlled and sent to the UK Met Office to be used in other workpackages of the project. The data will also be accessible to other interested persons.

We have 150 digitised russian stations with subdaily pressure and temperature information from the 19th century. Some start in the 1830s already, all end in 1880. They were digitised with funding from the Justus Liebig University of Giessen, Apart from pressure and temperature we also digitised additional meteorological variables for many stations. Please contact me if you are interested in those data (juerg.luterbacher@geogr.uni-giessen.de)

New Swiss project (Swiss Ntl. Sci. Foundation): Rescue early-instrumental Swiss data - large amount of data discovered, imaging in process. Hope to get several more 200 yr subdaily series.

MB: URV has digitised and gathered from open data sources in Sweden, Norway and Catalonia about 180M of station values for different variables (TT, SLP, RH,) shall be made available to global data centres not later than the end of this year.

XW: Environment and Climate Change Canada has a contract with Vicky Slonoski to locate 18th century's British America (now Canada) meteorological observations and make an inventory of what are still to be digitized.

Peter: If there is desire to continue to have data rescue group would like to consider volunteers with more time to take on its leadership and drive it forwards. Or do we effectively cede the data rescue aspect to others at this juncture who are resourced to pursue it? What value does the iSTI data rescue grouping add, if anything, to the international effort?

Agreed to retire task team but keep request to update from ACRE/lot 1 as standing item. If Lot 1 successful.

4. Parallel measurements update

Victor: The progress of POST has been limited. We had hoped to finish the two studies on the transition to AWS for temperature and precipitation last year, but did not do so yet. We do have a sufficient amount of datasets by now, but the analysis needs to be completed and writing still needs to be done. Expect these papers to be written in 2017. The number of datasets for the transition to Stevenson screens is growing. In Europe we have "enough" by now, we need to actively search for datasets elsewhere to make it a paper. The relocation study is stuck in the design phase. At the moment it looks like the transition to airports is an attractive first study. A citizen scientist just found that this transition probably explains most of the influence of homogenization adjustments on the global mean warming in GHCNV3: <http://variable-variability.blogspot.com/2017/01/some-programing-skills-compute-global-temperatures.html>

Victor: Also some thesis have been written on the transition to Stevenson screens or are in the works.

Zeke H: Victor, I took a look at airport location impacts back in 2010 if its of interest: <http://rankexploits.com/musings/2010/airports-and-the-land-temperature-record/> . One of the takeaways was the importance of restricting to common spatial coverage for these sort of analysis (e.g. requiring gridcells with both airport and non-airport stations), otherwise changing spatial coverage can swamp the size of the effect you are trying to detect.

Peter noted that Victor shall be invited to GCOS AOPC to speak on the parallel measurements effort

5. Benchmarks update

Little progress. Some details were agreed at a meeting in November at Maynooth of a small subset of the group (meeting of opportunity at short notice) but these have yet to be implemented. The clean worlds are basically complete but the papers describing these are still pending.

Lynne Seymour has taken over from Robert Lund leading one of the clean world papers and Kate needs to poke Richard Chandler to provide feedback on the second clean world paper prior to submission. There is a first version clean world set of ISTI monthly temperatures and the code can be run on the new ISTI databank. This has not been done yet - waiting on paper submission. It could be done though.

We have narrowed down the scope of the error worlds and this is now theoretically ready to be coded up - code has been started on github but as yet is incomplete.

Kate has not held a benchmarking call for some time given her lack of time to put into this since mid-2016. Kate is about to go on maternity leave for 6-12 months but intends to pick this up again on return unless someone else wants to take it on in the mean time.

VV: Happy to take on building the code for the error worlds dataset but would need someone else to run the final version so that Victor can play. We will ask around the group when the code is ready to see if someone can do this.

IJ: Happy to contribute on validation when we're ready for it.

ACTION: Victor to take forwards developing code for benchmarks and to be point of contact for benchmarking during Kate's maternity absence.

Rachel Killick(nee Warren)s daily benchmark thesis is now publically available (<https://ore.exeter.ac.uk/repository/handle/10871/23095>) and Rachel has begun to write up papers.

Please note that those two papers are of importance as well but not in the thesis mentioned Toreti, A., Kuglitsch, F. G., Xoplaki, E., Luterbacher, J. 2012: A novel approach for the detection of inhomogeneities affecting climate time series.

Appl. Meteorol. Climatol., **51**, 317-326.

Toreti, A., Kuglitsch, F. G., Xoplaki, E., Della-Marta, P.M., Aguilar, E., Prohom, M., Luterbacher, J., 2011: A note on the use of the standard normal homogeneity test to detect inhomogeneities in climatic time series. *Int. J. Climatol.*, **31**, 630-632

Ian J: Something has come up and I may be late for the call. In the meantime, a comment. I'm afraid that my abilities and enthusiasm continue to decline with age. However, I'm still an interested party in the benchmarking and would like to be kept in touch. I don't recognise some of the things mentioned in this section (meeting in November?) but it may be my faulty memory. I certainly expect to be involved in Rachel's write-ups.

6. Updates from others on relevant things that have occurred

Any update on GHCNv4 development? A science council review of the v4 mean temperature development effort was completed in December. A journal article (led by Matt Menne) is on its way to being completed and will be submitted (to JGR-Atmospheres or J. of Climate) by March. Following receipt of positive reviews will be releasing the dataset into operations. v4 mean Max/Min Temperature development will be accomplished subsequently.

Zeke H - Separate project in early stages to compile GHCNv4 station location metadata via remote sensing projects (vegetative type, land cover type, various urbanity proxies, airport location, distance from coast, etc.)

Victor: Are weather predictions accurate enough to see errors in location nowadays? :)

Zeke H - Good question! Worth looking into.

Any update on papers arising from the SAMSI workshop?

EUSTACE next General assembly shall occur in March - Peter shall attend as part of advisory committee. They are doing interesting work on daily data.

Any update on the rezatec activity?

EMS 2017 will be in Dublin. It may be an opportunity for at least European members to meet up?

4th-8th September

Victor: Hope to be there. Happy to stay before or after in beautiful Ireland.

John C. - I'm very puzzled by the divergence between surface and troposphere. 2016 vs. 1998 in sfc was 0.6 C warmer(NCEI's global anomaly in 2016; 0.94 - 1998; 0.63), but in troposphere only 0.1-0.3. This doesn't fit any known theory of atmospheric/surface response to forcing. Why??????

[I have redacted a long trail from the notes here as one or more of the parties to that discussion may wish to pursue further to publication and am applying an abundance of caution. The question arose some substantive discussion]

Robert: HadEX3 creation started. Interested in daily temp and precip.

Victor: Would an advertisement on my blog be helpful?

RD: it may be - I'll check with the others involved and be in touch. Thanks!

7. Discussion of where we go from here

Is there a need to refresh membership of the various groups and reappraise the aims and terms of reference of our activities?

I am Peter Domonkos (suggest for referring me in chats: DPeter).

- i. Please consider that new version of automatic homogenisation method ACMANT has been published: Domonkos, P. and Coll, J. 2016: Homogenisation of temperature and precipitation time series with ACMANT3: Method description and efficiency tests. Int. J. Climatol, doi: 10.1002/joc.4822, (early view).

- ii. Though I am unemployed (since Jan 2016), from my part this fact does not exclude to take part in ISTI activities. I am interested first of all in time series homogeneity related issues, and I maintain my openness to possible contribution in the topic of the impact of sheltering change to Stevenson screen.

Do we need new young blood that is less busy? Certainly the next 12 months look bleak for Peter's personal ability to give ISTI in-depth consideration. Should we have co-chairs? Would we have any volunteers to take on co-chairing?

Also a bit bleak for KW contributions.

Blair: Could advertise.

Matt: Copernicus will push databank side. Other things may languish?

Push at EMS - when we know a bit more about how Copernicus Lots are shaping up?

Blair: reassess once Copernicus up and running

Victor: Look to newer academics to come into the benchmarking work?