

ISTI all hands call Jan 9th 2015 @ 13Z (14 CET, 8EST)

Present on call: Peter Thorne (PT), Victor Venema (VV), Robert Dunn (RD), Colin Morice (CM), Andrea Merlone (AM), David Lister, Rob Allan, Enric Aguilar(EA), Rachel Warren, Ian Jolliffe, Renate Auchmann (RA), Steven Worley, Jay Lawrimore, Xiaolan Wang (XW), Michael de Podesta, Richard Chandler, Lucie Vincent (LV), John Christy (USA), Claude Williams(CW), Matt Menne (MM)

Apologies in advance: Manola Brunet, Jared Rennie, Akiyo Ataki, Blair Trewin, Kate Willett, Lisa Alexander (LVA), Albert Mhanda, Juerg Luterbacher, Albert Klein-Tank

Draft progress report and IP refresh circulated in advance.

Draft terms of reference for parallel measurements team circulated in advance

Document for discussion of reference measurements activity circulated in advance.

Summary of agreed actions

ACTION: Victor, Renate, Peter, Jay and Blair to discuss name of the team on parallel measurements to try to avoid confusion with WMO naming.

ACTION: All to provide suggested edits to the progress report by Wednesday by email to PT

ACTION: All to provide suggested edits to the Implementation Plan by Wednesday by email to PT

ACTION: Next SC meet to discuss the instigation of the data analysis and visualization group.

ACTION: All please provide feedback to Andrea on his reference measurements strategy document to help him in developing the ideas further.

ACTION: Various translations of the flyers prepared for COP to other languages. Enric will translate to Spanish; Stefan to German; Lucie to French.

Summary of agreed outcomes

Participants agreed to adopt the terms of reference for the parallel measurements team following modifications suggested under item 2.3 and closure on the group name issue.

Progress report will be redrafted over next week based upon feedback received by email in addition to points noted on the call and circulated to steering committee for approval.

IP refresh will be redrafted over next week based upon feedback received by email in addition to points noted on the call and circulated to steering committee for approval.

1. Updates from Steering Committee - Peter

Since last all participants call:

- We have redrafted the IP and drafted an annual progress report (items 3 and 4 of substantive business below)
- Given a talk at EMS in Prague
- Had scoping discussions with UCL/Rezatec on a portal development (see item #5)
- Peter has taken a role on the Science Advisory Panel of EUSTACE (see item #6)
- Kate went to COP and took some fliers - see her report under item 2.4. Flyers are available online and everyone encouraged to take them to relevant events / meets to hand out.
http://www.surface temperatures.org/promotional_materials.
- Blair has collected some statistics on national level homogenization techniques and national products. These have been circulated to the steering committee and posted on the blog.

2. Working group, task team and expert team updates

2.1 Databank Working group - Jay

Monthly Databank:

Continue to receive feedback from users of the Monthly Databank version 1. We are looking at issues associated with duplicate stations – primarily associated with data from databank sources that themselves are made up of merged station records (e.g., CRU, Australia). For next databank merge looking at restricting sources to those known to consist of individual station records. Also potentially changing the metadata probability threshold to be more restrictive. This will take priority over the addition of new sources.

Potential new source data on hand.

- UK Stations from the Met Office (300+ stations)
- German data released by DWD (1000+ stations)
- EPA's Oregon Crest to Coast Dataset (24 stations)
- LCA&D: Latin American Climate Assessment and Dataset (148 stations)
- Daily Chinese Data (380 stations)
- NCAR Surface Libraries (unknown number of stations)
- Stations from Meteomet project (240 stations)
- Libya Stations sent by their NMS (9 stations)
- C3/EURO4M Stations (80 stations)
- Additional Digitized Stations from the University of Giessen (10 stations), more have been sent recently and more will be sent in the next weeks, mostly from Russia from the mid-19th century to 1880, stations from Canada, from northern Nigeria and various regions of Asia and Australia
- Homogenized Iranian Data (50 stations)
- Long-term Swiss data (7 stations)

Daily Databank

The majority of the version 1 monthly databank originates from summary of the day observations. And it is expected that future enhancements to the monthly databank can be made largely through the addition of new sources of summary of the day data. Of the more than 30 sources of daily data in the version 1 monthly databank, most observations are provided by the Global Historical Climatology Network-Daily (GHCN-Daily) dataset. This dataset contains more than 30,000 stations with maximum and minimum temperature. It also contains more than 90,000 stations with daily precipitation and more than 40,000 with snow observations.

The GHCN-Daily dataset will serve as the Daily databank. GHCN-Daily makes use of multiple elements in data match assessments and source merging. GHCN-Daily also has a large number of automated update streams. Consequently, the work of establishing an integrated databank of merged summary of the day temperature data has largely been accomplished. Additionally, maintaining the integration of elements in addition to temperature makes the database more broadly useful to the climate community than one containing temperature alone. Going forward NCDC plans to continue to support the ISTI databank effort through further development of GHCN-Daily, specifically by adding unexploited data sources of daily temperature and elements.

For the time being, the merged Stage 3 daily data will exist within the GHCN-Daily dataset. Unless there is a compelling need to separate the temperature data into a unique single element data set, no effort will be made to create a Stage 3 databank for daily temperature data.

It should be noted that ultimately, the work of building an internationally recognized in situ database will likely need to come under a coordination umbrella that extends beyond ISTI to ensure better coordination with other data collection efforts (e.g., precipitation, pressure, snow).

John Christy: Is the merge 100% automated?

JL: No, there are some manual checks on some of them. Has been discussion of taking a new look using a distinct approach with more manual input after each iteration of a new source to the merge but this would take a lot of resource.

Matt Menne: Regarding the umbrella idea we are trying to get some funding support for a meeting to move forwards. There is support for the concept. New sources for daily also being investigated.

2.2 data rescue task team - Peter

We have had one call since the last all hands and noted some progress with ongoing data rescue activities but there is little new to report directly from our activities.

Rob Allan has been pressing ahead with a WMO CCI effort on data rescue and Peter Thorne provided some minor comments and suggestions upon this

document at the end of November. The group met in December. Aim is to have an update for WMO Congress

2.3 Parallel measurements expert team - Victor

PT: On its most recent call the steering committee requested that Victor Venema and Renate Auchmann move forward with formulating an Expert Team on parallel measurements. A draft TOR has been circulated and we shall aim to formally constitute the group by adopting these TOR on the call. Per the TOR draft Victor would find himself also sitting on Databank WG and SC as ex-officio to ensure reporting of ET progress to these bodies. Hopefully not too onerous.

BT: I wonder if we should find a different terminology for Expert Team, to avoid possible confusion with WMO groups?

XW: Following the ISTI convention, a working group?

Agreement on call that important to name in a way that is not confusing to external parties. VV, JL and PT, BT, RA to discuss name and anyone else who wants to join is welcome.

RA: I'm not too much informed about which names are taken by WMO or similar. Would it help to change from team to "unit" or "group"? My humble contribution..

VV: Or network, or cluster. Specialist, Science

ACTION: Victor, Renate, Peter, Jay and Blair to discuss name of the team on parallel measurements to try to avoid confusion with WMO naming.

VV: The Terms of Reference (ToR) of the Parallel Expert Team (PET) should not contain surprises for those familiar with the existing aims. They were always close to the ones of the ISTI. We want to use open programming languages and will publish our data processing with an open license. The data will be open after the first publication(s) using them, but in some cases it may only be possible to publish indices computed from daily data for legal reasons.

VV: There are basically 3 tasks: get the data processing running, collect data, and analyse and publish results.

EA: not to forget to collect the metadata. As we're building this from scratch (or almost), and data providers surely have access to this information, we should keep develop a minimal set of metadata information that we want around each dataset. This is mentioned in the ToR of the purposes of the group, point 4.

VV: Exactly, especially for parallel measurements, the meta data is as important as the data itself.

EA: in the ToR document, PET purposes, item 2 it says that ETCCDI indices will be computed. We face a problem here: parallel measurements will have 2, 3, no more than 5 years. Some of the indices require long references periods, such as those based on percentiles, so we cannot compute them at all. These indices are the most interesting as they allow global comparison. A way to overcome this is link the parallel measurements to an existing long term series and compute the indices twice. This should be considered when requesting the data series.

VV: Good idea to use nearby long series if available. Otherwise I would suggest to simply compute the percentiles the normal way. With only a few years of data, they will be more noisy, but I do not see a fundamental problem with computing percentiles on less than 30 years of data.

EA: no, but you cannot compute the percentile based ETCCDI indices with 3 years of data.

XW: I fully agree with Enric, as I commented on the ISTI Implementation plan. Parallel measurements are most useful to obtain more accurate adjustments. I think the data outside the parallel measurement period are not parallel measurements. I think the point should be to assess the effects of using parallel measurements to homogenize daily data time series (versus using statistical methods) for ETCCDI indices calculation.

VV: But I can compute the same percentiles. :-)

XW: the percentiles in ETCCDI is based on a reference period. They are not the "conventional" percentiles.

VV: It is proposed that I would initially be the chair and that Renate Auchmann will be the co-chair.

VV: We already have a distribution list, I would suggest to keep it.

VV: I am not sure if we would need another blog, I would suggest to use one of the existing ISTI blogs.

VV: It might be a good idea to combine all ISTI blogs, the general blog and the one of the benchmarking group into one. (The databank already does not have its own blog, right?) That would lead to more regular content, which makes it more useful for someone to have a look. I would expect most readers to be interested in all aspects of the ISTI. Experience tells me that comments are mainly limited to the first few days and that people shy away from being the first comment writer. Thus having more mass could also be more interactive.

KW: Not totally opposed to this but sometimes (not often) we use the Benchmarking blog for quite technical stuff related to benchmarking that may not be of direct interest to others. Still - happy to go with the flow on this.

VV: Was just a suggestion.

VV: TODO. See also the Implementation Plan.

In January we want to build up the group. Suggestions are welcome, especially for interested scientists outside of Europe, which I may not have on my radar.

EA: I have suggested Victor a few names. Some of them have already contributed with data, other might be interested. I am wondering if we could exploit as well the contacts that KNMI has through the *CAD efforts (Latin America, Asia, Africa).

VV: Theo is on my list, will ask him for more suggestions.

VV: Also feel free to suggest yourself.

In February we would then have our first telecon and decorate our new home: http://www.surfacetemperatures.org/databank/parallel_measurements
In July we would like to have the data processing running, the computation of data at various temporal resolutions and of indices, quality control of the input data and detection of the worst inhomogeneities.

RA: I would change this in the IP: from "homogenizing" to "assessment of homogeneity (break detection)".

VV: Good point, should be break detection & splitting of time series, we will not adjust, which the term "homogenization" suggests.

EA: the important point here is to make sure that the relation between parallel measurements is constant, i.e. not disrupted by internal inhomogeneities in either series. So, I would go with homogeneity assessment as well.

BT: agreed. My experience in working with parallel observations in operational data sets is that often the 'old' station becomes inhomogeneous - often because of the reasons why the 'old' station is being closed in the first place (e.g. building works nearby)).

VV: After the holidays in September we start to get serious about collecting data (although data contributions are naturally already welcome).

Somewhere in 2016 (not 2017 as in the IP) we plan to submit the first paper.

This will most likely be about the transition from Stevenson screens to AWS. An overview of the importance of this transition is missing and it will probably be relatively easy to get data for this transition. The transition to Stevenson screens will be another focus, expecting it to be important, but getting data will be harder.

Participants agreed to adopt the terms of reference for the parallel measurements team following modifications suggested under item 2.3 and closure on the group name issue.

2.4 Benchmarking and assessment working group - Kate

Since the last call I have mostly been travelling with painfully limited access to work email/files and so made very little progress other than starting to draft a paper on the creation of the global scale benchmark clean worlds.

I attended COP20 in Lima, Peru in December to present the work of the Met Office on climate change. I took some material on the ISTI and this was well received. I have a bee in my bonnet about trying to organise a side event at COP21 in Paris focussed on the necessity of climate data to underpin adaptation strategy. The work of the ISTI (databank, data rescue, parallel data and benchmarking) should form some part of this. I got a strong feeling that many people outside of the scientific community do not realise that there is an issue with the availability of high quality climate data. They think that its all sorted and now we can get on and design adaptation strategies which is of course impossible if we do not have a good grasp of our current climate characteristics and recent changes.

BT: I am leading the preparation of WMO's 5-year climate assessment for 2011-15 which will be released at COP21 - not sure if I will be in Paris myself, or whether there will be much scope for including material about data in the assessment, but will keep this in mind. Will know more after a planning week in Geneva at the end of January.

KW: I visited the University of Bern, Switzerland just before Christmas to give a talk on the ISTI/Benchmarking and visit Renate Auchmann and Stefan Bronnimann.

In February I will attend the WRCP workshop on data extremes to present on ISTI and a little on benchmarking. The main focus here will probably be on the databank side of things, but benchmarking will have its part to play as high resolution data will need to be homogenised somehow. I hope to also visit the Australian Bureau of Meteorology and CSIRO to present on ISTI/Benchmarking. BT: numerous other people involved with ISTI will be at this workshop, including myself.

2.4.1 Update on daily benchmarking - Rachel Warren

Just a brief overview of how the PhD is going:

The error worlds I created were released towards the end of the last year and participants in the study returned their data to me just before Christmas. Three worlds contained 4 regions of the US, people were asked to prioritise the smallest region which was Wyoming, with 75 stations in world 1 and 158 stations in worlds 2 and 3. The fourth world contained just a Wyoming world 1 equivalent and the deadline for returning data is today ~(technically tomorrow at the time of writing!)

The response has been good, 4 different groups took part, though two people returned multiple homogenised versions, so in some of the Wyoming worlds I have around 10 different sets of results to compare and most others have around 6. I am also expecting a late submission by the end of this month which is when I hope to really crack on with the analysis in earnest.

I'm hoping to have at least a draft of a paper (or ideally a submitted paper) detailing the analysis before my thesis submission deadline which is September of this year. I'll also be presenting an overview of the work at EGU as Kate mentions.

The data that I have been using for this project come mostly from the GHCN-Daily database and NOAA's 20th Century Reanalysis data.

Data release page can be found here: <http://www.metoffice.gov.uk/hadobs/benchmarks/>

PT: Are these truly daily adjustments?

RW: People have generally implemented their algorithms at monthly then implied daily adjustments.

VV: Mainly mean adjustment or adjustments to distribution?

RW: Not clear yet, need to investigate further. Data only just in.

3. Discussion of progress report - All

pg2, line 52 of progress report: Add talk given about ISTI by Enric at the 8th meeting on Homogenisation and Quality Control in Budapest, May 2014 (this needs to be updated on pg8 as well as it was Enric that gave the talk not Victor). Also Kate gave a talk at the University of Exeter to the climate research group in March of 2014.

BT gave talk to Commission for Climatology Technical Conference in Germany in July 2014.

Also line 449 should refer to 2015 and not 2014?

ACTION: All to provide suggested edits to the progress report by Wednesday by email to PT

Progress report will be redrafted over next week based upon feedback received by email in addition to points noted on the call and circulated to steering committee for approval.

4. Discussion of IP refresh - All

PT: IP refresh has too little in 2016 - please provide suggested mods that may equalize work across the three years of the IP refresh.

JL: Will push some databank goals to 2016

EA: Parallel measures collection to 2016?

ACTION: All to provide suggested edits to the Implementation Plan by Wednesday by email to PT

RW: Below are my comments I haven't made any of the changes as some of them may be me misinterpreting things or my file reader messing the formatting up Not sure the last sentence on page 12 makes sense, but can't work out how to edit it to make it clearer but keep its meaning.

A question relating to paragraph 2 of page 13 out of interest not needing to be included - what is the expected turnaround time for non-contributors to be able to access the data? I don't really know what the timescale of joint publications would likely be?

Just a note - if the expert team ceases to be called the expert team then there are quite a few places in this document where the name will have to be updated. The link in the last line of the table on pg20 takes you to the list of reference literature which should be updated to include the Willett et al paper published this year.

pg21 - third paragraph - 2nd sentence doesn't make sense

Last paragraph of page22 - the word range randomly has the number 22 in the middle of it

pg29 - There was some talk after IMSC in 2013 about trying to have an ISTI (or it might have just been benchmarking?) meeting alongside it in 2016 - could we put this in as a 2016 target or would it be more of an informal thing?

IP refresh will be redrafted over next week based upon feedback received by email in addition to points noted on the call and circulated to steering committee for approval.

5. UCL / Rezatec portal discussions to happen on 13th - Richard Chandler / Peter

The UK Natural Environment Research Council recently funded a series of "Big Data Capital" initiatives, aiming to expand the infrastructure of the environmental science community with respect to data holdings and access. One of these initiatives is led by University College London, and involves the development of a "global data platform" ("BioClim") which is envisaged to bring together a collection of global datasets from all areas of environmental science, in such a way that users are easily able to link data from different sources. An initial phase of the work for this was to identify the datasets that would be integrated into the platform; the ISTI dataset has been identified as one of the key datasets. From an ISTI perspective, an advantage of being involved with this initiative is that it provides some resource for experimenting with the development of a portal for data provision, selection, visualisation and analysis (because these will all be carried out as part of BioClim). The BioClim platform development is being subcontracted to a commercial organisation, Rezatec. A teleconference was held on 17th December 2014, involving a few people from the ISTI steering committee and databank WG along with Rezatec representatives, to explore possibilities for collaboration. The outcome was broadly positive, although the details need to be clarified. Richard Chandler has subsequently been in contact with the Rezatec project manager, who confirmed their intention to provide a functional portal (of some form) by the end of March 2015. Richard and Peter will meet in person with Rezatec representatives on Tuesday 13th January, to take this further.

VV: How does this relate to envisage data access, visualization and analysis group?

PT: Not directly but may provide a concrete basis from which to start to move forwards not thus far afforded. Once benchmarks are out or nearly out we shall address this again.

ACTION: Next SC meet to discuss the instigation of the data analysis and visualization group.

SW: With mirroring of ISTI care should be taken to monitor versions, so that the vizualizations are traceable to the source archive.

6. EUSTACE - MO folks and other EUSTACE participants

This is an EU H2020 project led by Met Office. Its kick off meeting is next week. Peter will attend as advisory panel member.

EUSTACE – EU Surface Temperature for All Corners of Earth - EU funded Horizon 2020 Project

Met Office, DMI, KNMI, University of Bath, Universitaet Bern, University of Leicester, University of Reading, UK Science & Technology Facilities Council

The EUSTACE project aims to produce a daily, globally complete air temperature product covering period from 1850 using a combination of in situ and satellite derived data. The following is a link to Nick Rayner's presentation at the Climate Symposium summarising the scientific challenges that the EUSTACE project aims to address:

<http://www.theclimatesymposium2014.com/ClimateSymposiumNickRaynerEUSTACEfinal.pdf>

Science work areas:

- Data acquisition - DMI, Met Office, Leicester, Bern, KNMI, Reading
- Homogenisation and quality control of daily in situ data
 - Land air temperature - assessment of methods for daily homogenisation – Bern/KNMI
 - Lake surface temperature –Reading
- Uncertainty estimation of input data – Reading/DMI/Leicester/Bern/KNMI
- Building relationships between land/ice/ocean/lake surface and air – MO, DMI, Reading
 - LST – Met Office
 - Ocean – Met Office
 - Ice - DMI
 - Lakes –Reading
- Statistical analysis to produce globally complete fields back to 1850 – Bath/Met Office
- System/product development – Met Office/Bath/STFC
- Validation against reference data and comparison with other temperature data sets –Leicester, DMI, Reading
- Gathering of historical and research campaign data for validation - Leicester/KNMI/Bern/DMI/Reading

PT: If you use land surface air temperature data beyond GHCN-D can we ensure sharing where possible to augment GHCN-D? There is also daily stage 2 data in the databank.

CM: No funding for data rescue but yes where possible we will have to take on board IPR.

SB: KNMI will host and share through *CA&D.

VV: Can you derive monthlies in addition? Both station series and gridded estimates?

CM: Yes, in theory we will.

MdP: Very ambitious

CM: Yes, but we will try.

7. ISSI International team bid? - Peter

The International Space Science Institute will make its annual call for international teams this month.

See <http://www.issibern.ch/aboutissi/tools.html>

Specifically:

International Teams are composed of about 8-15 (not less than 3) scientists of different laboratories, nationalities and expertise. They hold a series of two to three one-week meetings over a period of 12 to 18 months. Exceptionally Teams may choose to have only one one week meeting with larger participation, i.e., a "Team Workshop". The "raison d'être" of Teams is to carry out a research project leading to publications in scientific journals. The activity is directed and organized by a team leader who is also the initiator of the proposal to ISSI. Though in close contact with the scientific staff of the Institute, teams are largely autonomous in the execution of their project. Teams are set up in response to an annual call by ISSI. Proposals are evaluated and prioritized by the Science Committee. Over the past years the number of accepted Teams are about 25 per year.

This may be something that the parallel measurements or perhaps the benchmarking groups could avail of. Or we could go for one big meeting. Or maybe someone else has a great idea. It would be good to get some face time to drive things forwards.

International Teams: A call for proposals is released every year in January. These proposals are evaluated and selected by the ISSI Science Committee.

Does anyone want to take this on? I will be moving my family to Ireland late Jan / early Feb so unlikely to be able to be PI in proposal drafting this year but would be pleased to be a listed attendee.

I believe that ISSI provides all in-Bern support but participants still need to cover their own airfares / train travel to Bern.

VV: Is something for us? The ISSI homepage states (HT Renate Auchmann from Bern): "Teams are one of the ISSI tools, through which relatively small groups of scientists involved in Space Research can work together in an efficient and flexible format of several subsequent meetings, during which data are analysed and compared with theories and models."

PT: I know of a recent lidar international team so I know its not PURELY space based. But, yes, some space based aspect may need to be in there.

RA: I talked again to Stefan, to have any chance there should be at least one talk at the meeting then from space science. For a bigger ISTI meeting this could be more reasonably incorporated (e.g. a space person from EUSTACE), for the parallel database (expert) team alone it doesn't make much sense. (I suppose same applies to benchmark-only meeting).

KW: Interesting from a Benchmarking point of view. We would greatly benefit from a week or two of focussed working together - computing connections permitting (ho hum...). I will look into this. There is also a NERC funding opportunity that sounds appropriate but possibly quite ambitious:

<http://www.nerc.ac.uk/latest/news/nerc/highlight-topics/>
Understanding and predicting anomalous trends in surface temperature and implications for long-term climate response.

VV: "anomalous trends" Is that a euphemism for the hiatus?

PT: At the WCRP/IPCC/GCOS workshop (ironically hosted by ISSI) it was pointed out that departures in either direction from long-term trend were equally scientifically important to understand. e.g. if in future we have an anti-hiatus would it portend a more longer-term rate increase? Or could it be variability? And how, mechanistically, would we determine that either way? Is it realistic that any time the decadal trend departs from the multi-decadal trend that questions of multi-decadal implications of recent behaviour will portend in policymakers minds and the general public.

8. Reference station for temperature records - Andrea Merlone

The MeteoMet consortium is working to understand the characteristics of high quality temperature data, taking into account the state of the art and instrument progress.

Let's say we would like to define what a top level air temperature value is, and what this turns into requirements in terms of instruments, calibrations, quantities of influences, uncertainty etc.

For this, we started to organise a group, within ISTI and metrologists, to discuss the "recipe" to make the best reference ground based observing station for climate analysis.

In the coming years we will try to evaluate one by one the major number of uncertainty contributions to measured values (including calibration uncertainty off course). Drift, ageing, quantities of influence, sensors dynamics that can generate different responses in different instruments.

Our scope is to define, assemble, compare top quality instruments also in redundant configuration, in a class 1 site and with fully defined calibration and uncertainty evaluation. USCRN may be a good place to start and we can focus on preparing the proposal for small scale of smart local networks of 5-6 reference sites, all of them equipped with same instruments, following same calibration procedures and compared with USCRN assembly.

We have funds to start the work, under MeteoMet2, and we can include the idea in a more robust work package in the next 2015 call under the EURAMET program, to fund a more structured project, lasting at least 2016-2019.

This issue can also be an action for the BIPM (CIPM) Task Group Environment of the Consultative Committee for Thermometry.

A draft document has been prepared and the group of volunteers to discuss this issue is by now formed by:

Andrea Merlone
Michael de Podesta
Michael Palecki
Peter Thorne
Victor Venema
Kate Willett
Richard Chandler

Thomas Peterson (not confirmed)
Manola Brunet (or Alba Gilabert) (proposed)

Others are welcome

VV: Next to the instruments, we should also try to make a global reference network a reality.

VV: It would help if the next global climate treaty in Paris would also mention that we need such a network, that the developed countries will fund this and that all climate data and metadata should be shared internationally.

KW: see my comments above about trying to get a side event at COP21 on the state of our climate data for underpinning adaptation strategy. This should be a collaborative effort. Does anyone else here have any links to the COP21 meetings? To attend you need to travel as one of the registered institutions of which the Met Office is one. Many other Universities and Institutions have a presence there but its a bit of an odd one - being a political conference primarily.

VV: This will be needed to know whether we have crossed the 2 degree limit and to assess damages from changes in extreme weather.

VV: It might make sense to combine this with a global radiosonde reference network. (Are there any other useful complements?)

ACTION: All please provide feedback to Andrea on his reference measurements strategy document to help him in developing the ideas further.

AM: prepare a paper describing what the "best temperature record" is for climate trend evaluation, that includes all known parameters of influence and their target uncertainty with respect to their effect on the temperature value measured and its uncertainty.

MdP: Instrumental uncertainty is important consideration. Need to understand siting, shelter etc. considerations.

JL: We need to not do USCRN over again.

MdP: Yes, but is USCRN the right way?

JL: How do you ensure what you do interfaces with USCRN?

AM: first working on theoretical definition of "best quality climate record", then defining the required instrumental capabilities and target uncertainties and possibly physically comparing with USCRN.

JL: Add Howard Diamond?

AM: Howard would be welcome.

VV: One difficulty is keeping instrument stable and long-term reproducible.

AM: We intend to define only instruments required characteristics and capabilities to avoid problems if a specific device is no more produced / replaceable (like for SPRT in ITS90...)

9. Upcoming meetings and activities - Peter

Event on extremes in Sydney next month (25th-27th Feb) - Lisa / Kate / Akiyo / Blair/Robert Dunn - this is part of the WCRP Grand Challenge on Extremes and is focussed on "data issues". See <http://www.wcrp-climate.org/index.php/extremes-data-wkshp-about>

EARTHTEMP meeting on urban temperatures, Reading, UK, June 2015 - if interested please indicate so as building invitee list presently

Upcoming EGU2015: Climate Data Homogenization and Climate Trend and Variability Assessment

session: <http://meetingorganizer.copernicus.org/EGU2015/session/17056>

KW: Missed deadline for submitting a Benchmarking poster but if there is an extension then Victor will submit and present. Rachel Warren has been accepted to attend under EGU sponsorship for young scientists. She will present her work on the daily benchmarks.

EA: Please, Kate and/or Victor, make your contribution arrive to me as soon as possible. I am taking care of the session this year. The deadline to use the "convener-joker" to upload additional abstracts is next Friday.

VV: I will do so (beginning next week).

Longer term also these: <http://variable-variability.blogspot.com/2014/12/meetings-for-fans-of-homogenisation.html>
10th EUMETNET Data Management Workshop

IMSC2016

Any others we should be aware of?

EA: "La Climatologie, fondation des services climatologiques" in Météo-France, Toulouse in late March, It is WMO sponsored. I'll be giving homogenization lectures and hands-on-data training. The seminar is in French and I expect to find participants from francophone countries outside Europe. It is a good opportunity to establish contacts for the parallel measurements group and to make people aware of ISTI.

PT: Also to solicit databank submissions? EA: that's what I expect! :-). But, usually, the person sent to these kind of courses has no decision power, although can be facilitate further contacts.

We can probably create a French language version of the 4 flyers Kate took to COP on that timescale with any help from native French speakers. Spanish version as well if someone wants to take a shot at that. See http://www.surfacetemperatures.org/promotional_materials - Jay would need to clear effort to build the variants w/NCDC graphics team but as it would be text replacement shouldn't be onerous. Any volunteers to take this on as an action item?

EA: The flyers would help a lot. Happy to distribute them and I hope I can manage to give a very short briefing. I can help with the Spanish version if necessary.

ACTION: Various translations of the flyers prepared for COP to other languages. Enric will translate to Spanish; Stefan to German; Lucie to French.

First one needed in time for meeting in late March (French translation).

AOB

All groups please aim to have a call in March / April if not before to keep communications open and progress checked.

We shall aim to have another all participants call in June / July