

Global data rescue (DARE) activities relevant for extremes

By Manola Brunet

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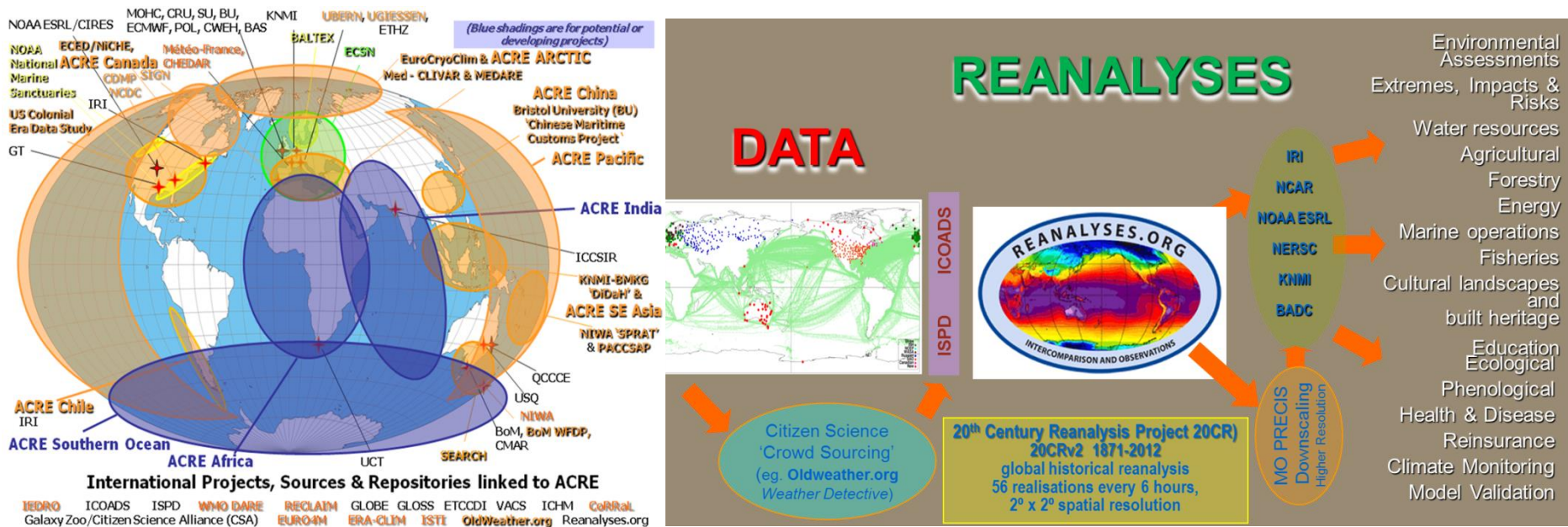
Centre for Climate Change, University Rovira i Virgili,
Tarragona, Spain and Visiting Fellow at the Climatic Research
Unit (CRU/UEA, Norwich, UK)

**Worth to look at Phil's views on data issues and
other data sources relevant to extremes in his
presentation (mainly not shown in here)**

Outline

- DARE activities worldwide: Adding new data to support extremes analysis & the role of currently available global data archives
- DARE shortcomings and challenges to address in order to enhance extreme analysis with the focus on the next 3 years timeframe

DARE activities worldwide and their role and status with the focus on surface station data (1)



Source: Rob Allan at the INDARE meeting (Maputo, Mozambique, April 2014)

The ACRE effort and its myriad of linked DARE regional projects: facilitating efforts to enhance data availability and preserve historical data sources to support global Reanalysis (the 20CR project)

Linked to oldweather.org crowd-sourcing effort for marine data & the ISPD for surface station data

Remarkable contributions to enhance historical climate data availability and sources preservation through duplication and easing accessibility (e.g. BADC Archive, CDMP/NCDC)



Atmospheric Circulation Reconstructions over the Earth

DARE activities worldwide and their role and status with the focus on surface station data (1)



A remarkable contribution to locate and image historical data sources (scans available at the BADC Archive) & coordinate efforts to digitise data in support of the 20CR project through ISPD

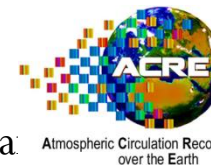


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Remarkable contributions to enhance historical climate data availability and sources preservation through duplication and easing accessibility (e.g. BADC Archive, CDMP/NCDC) while ensuring data-



DARE activities worldwide and their role and status with the focus on surface station data (2)

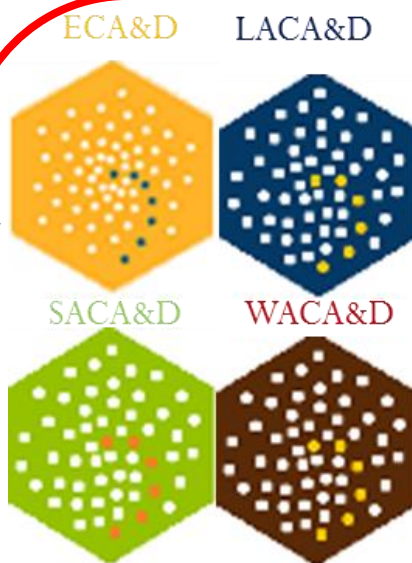
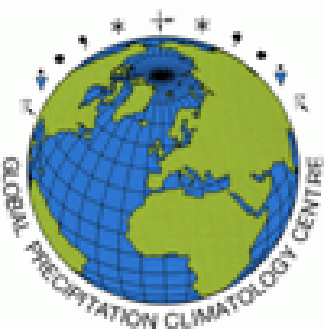


WMO OMM

The GPCP at DWD, including DARE activities (e.g. recovery & digitisation) over data-sparse areas (e.g. Africa) and gathering NMS data to support global precipitation services

IEDRO: locating, imaging &

digitising (Maryland US, Strip Chart Digitisation Program)



ICA&D at KNMI: DARE & Archival support for regional efforts over Europe, Southeast Asia, Latin America and West Africa

The WMO/CCI International Data Rescue Portal (I-DARE): A new effort to ensure DARE coordination and avoid duplication worldwide, while assessing, supporting and encouraging national and regional efforts

DARE activities worldwide and their role and status with the focus on surface station data (2)

The I-CA&D effort: a step forward towards implementing a global data portal where rescued/digitised data and derived products are made available, such as at E-CA&D?

If so, which would have to be the approach for don't disappoint the data owners' contributions and clearly recognise & thank their contributions?

And also, which would be the institution to target for ensuring a proper management and regular updating of historical climate time-series? (KNMI, NCDC, ECMWF, DWD, others?)

The new I-DARE approach: towards coordinating DARE activities worldwide to avoid duplicating efforts: An urgent need on the focus of the new WMO/CCI expert team on DARE, which is now undertaken on a voluntary and partial basis thanks to ISTI & ACRE DARE teams

Also, which would be the body to host, manage and update such a DARE interactive portal?

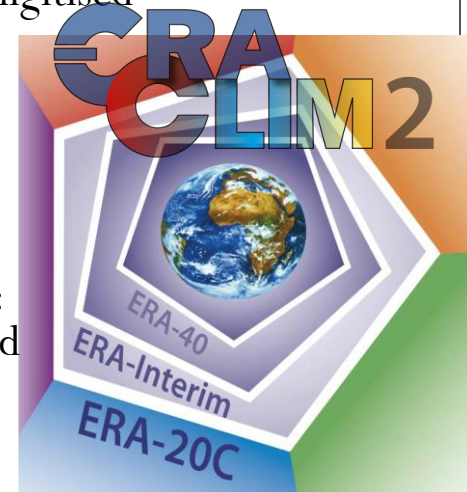
DARE activities worldwide and their role and status with the focus on surface station data (3)

The image shows a screenshot of the WMO MEDARE initiative website. The top left corner features the WMO MEDARE initiative logo. Below it is a login form with fields for 'user' (containing 'medare') and 'password' (containing '*****'), and an 'enter' button. A 'Register Now!' link is also present. The website is noted to work with IE 8 or Mozilla Firefox. Logos for the Centre for Climate Change and Universitat Rovira i Virgili are displayed. A central map of the Mediterranean region is color-coded by the number of metadata stations: red for 'No Metadata', orange for 'Metadata for ≤ 6 stations', yellow for 'From 7 to 15 stations', and green for '≥ 16 stations'. Below the map is the text 'Welcome to the website of MEDARE metadata!'. The bottom half of the image is a collage of various climate-related images, including a person in a desert, a satellite map, a coastal view, a map of the Indian Ocean, and a large banner for the 'Indian Ocean Data Rescue initiative - INDARE-'. A red circle with the number '7' is in the bottom left corner.

- The WMO-MEDARE & new INDARE joint DARE-efforts (NMS & Academia) for the Mediterranean and Indian Ocean Rim Countries regions to recover, digitise and develop long-term & high-quality climate data
- Regulated by data owners policies: data accessibility not totally ensured
- And requiring training in DARE & high-quality climate datasets development techniques
- Many national DARE efforts are enhancing data availability, but accessibility is restricted by the national data exchange policies

Data-Bank Archives versus DARE projects

- Several data-banks and repositories worldwide, but they mainly archive and ensure quality & consistency of the data recovered by other projects and initiatives
- The ISPD Archive to support the 20CR and other global & regional Reanalysis
- The ISTI DARE & Databank teams: a try to foster, coordinate and gather data recovered by others with the condition of unrestrictive access to the data while ensuring total traceability to the data and derived products
- The ECA&D role stimulating data sharing, but respecting providers data policies
- Real progress in recovering climate data (both historical and recent observations) made under the umbrella of funded research projects by including a DARE component
- The CDMP & ACRE efforts for imaging historical data sources & make them accessible to be digitised
- The EU-funded ERA-CLIM 1 & 2 projects to digitise historical surface and upper-air data for future reanalyses: about 1.3M station-days, > 200,000 images) & > 700,000 station days digitised
- The EU-funded EURO4M (> 2.7M new added station values) & UERRA (> 4M hourly station values for main ECVs: > 3M values recovered in its 1st year)



Data-Bank Archives versus DARE projects

At the end whom makes real progress on enhancing data availability (either scanning/duplicating data sources or data digitisation) is through regionally and internationally funded projects, as well as the national scale at NMS better resourced (both human and technically).

Accessibility to the data recovered by publicly funded projects is ensured, but the same can't be stated for those data recovered by NMSs, which bring us to the need for addressing this shortcoming for historical climate data (at the daily and sub-daily scales) accessibility

Data issues and challenges to face to enhance climate time-series to support extremes analysis (1)

- **Many digitised data exist at the national scale (NMS)** coming from their DARE programs and an improved awareness for recovering their historical past, but **the vast majority of these data are not accessible** and regulated by restrictive national data exchange policies (so, a challenge to face)
- **Reluctance** of most of funding agencies to place money in DARE activities. So a need for a strategy to overcome this:
 - Some progress has been done by **including a DARE component in funded research projects**, which has enabled to enhance data availability & accessibility, although the data recovered are limited to the project spatial targets (in general a regional or global focus: so, with a limited & uneven spatial coverage)
- International/regional unfunded DARE initiatives are mainly carried out on a **volunteer basis**. So, sustainability into the future is a challenge
- Free & unrestricted access to historical time-series is **still the big issue remaining to be addressed**
- **And along with the need for permanent archiving platforms globally and nationally in an interactive mode**. ISPD & ISTI are playing a role in here (particularly ensuring data consistency & quality), whilst a more robust and sustainable global data centre is identified & takes the lead)

Facing the challenges & what can be achieved in 3 years time (1)

- All DARE initiatives should **stipulate that the recovered & developed data should be made available**, although this could limit the number of data contributors...
- **Even scanning of old data projects**, with a view to digitization, **should also stipulate** that the data will be made available once digitised. This doesn't even happen in Britain. Money found for scanning of UK Daily Weather Reports, but not their digitising and if it was then the digitised data would not be made freely available
- **Capacity building in DARE** techniques and procedures or bridging the gaps in developing countries **greatly contributes to enhance data sharing**
- However, fostering regional workshops only help to raise awareness among NMS staff, but most of the times this doesn't reach the PRs (whom has the last word on data access)
- Need for reaching the PRs & persuade them of the advantages for sharing historical time-series:
 - Using WMO channels is crucial to reach the PRs, but even the Secretariat is not keen to reopen the debate on R40 (including the CCI MG, since it hasn't discussed in depth the issue)
 - Taking part in the regional PRs meeting could be a possibility to persuade NMS at the highest level, and if so, we need to offer something as exchange, such as
 - Offering them the co-authorship of any data related paper enabled by their national contributions? This could work in some regions (e.g. the Arab region)
 - Providing some kind of reward to those keen to share? Or making evident those that don't share in front of those that do
 - Making data derived products only to those that share their data?
 - Even so, PRs also change every certain time due to internal circumstances

Facing the challenges & what can be achieved in 3 years time (1)

- Easy to achieve in a short timeframe could be:
 - to identify the institutions to host the global data portal
 - And the interactive DARE repository
- International activities, such as the ETCCDI regional workshops, **should include as requirement for participants to make available and updated in a regular manner** the time-series brought to the training (perhaps an opportunity could emerge from an initiative in Central America to hold a ETCCDIWS this coming summer)
- Need to **continue to harass NMSs** that don't give access to their historical climate series – this includes many NMSs in Europe such as the UK and Spain
- Need **for follow up and ensure data integration** into a global data portal the accessible data from the few NMS that provides access to their historical data (e.g. Israel, Brazil, Norway...)
- **Harnessing the potential for citizen science**/crowd sourcing: difficulties, however, for surface data and beyond a 3 years timeframe
- Fostering **the recovery of historical time-series as global cultural heritage** to protect and preserve through UNESCO should be also envisaged: but also a longer target

THANKS & THOUGHTS