**Meeting Notes for 3rd Face to face meeting of the Expert Team on National Climate Monitoring Products, Marrakech, Morocco, 5-7 March 2018**

In attendance: John Kennedy, Lucie Vincent, Ladislaus Chang’a, Andrea Ramos, Simon Grainger, Jessica Blunden, Fatima Driouech. Apolgies Peer Hechler.

**Agenda**

1. OPENING

2. ORGANIZATION OF THE MEETING

2.1 Adoption of agenda *(John)*

2.2 Working arrangements *(John, host)*

3. REVIEW OF RECENT ET NCMP ACTIVITIES

3.1 Summary and review of progress against Terms of Reference *(John)*

3.2 Update on the publication of the guidance *(Peer)*

3.3 Recent work on developing the software and summary of issues arising *(Simon)*

3.4 Reports from members on their use of the software with feedback *(all)*

4. IMPLEMENTATION OF NATIONAL CLIMATE MONITORING PRODUCTS

4.1 Software package and user manuals for NCMP calculation by Members: Next steps and further development including maintenance

4.2 Options for disseminating NCMPs and further liaison with CBS

4.3 Next steps for NCMP implementation

4.4 NCMP capacity development

4.5 National NCMP Focal Points: Communication strategy

4.6 Interaction with other teams including ETCCDI

5. SUMMARY OF WORK TO BE DONE

6. ANY OTHER BUSINESS

7. CLOSING

**Key expected outcomes**

1. Agree on software package to be provided to Members for calculating NCMPs
2. Agree on NCMP implementation steps including NCMP dissemination
3. Outline of communication and capacity building strategies and next activities
4. Draft ToR for NCMP-related work in the next CCl intersessional period

**Agree on software package to be provided to Members for calculating NCMPs**

Each member of the team described their experiences of preparing or running the NCMP code. Problems with running the software were collected and solutions for each problem were discussed. A list of changes was made and prioritised into three categories: urgent (to be completed by the end of March), important but not urgent, and a wish list. The urgent list contains changes that are essential for version one of the code, or are very simple to implement. Each list element was assigned to a member of the team. The urgent list is as follows with the initials of the assigned team member and the script to which it relates:

Essential, P7 – summary output to match guidance - SG

Essential, P4 – check whether C diagonal should be zero - JK

QC, P1 – user defined upper and lower limits for Tmax and Tmin - LV

Diagnostic P5 – add time series to show PrA, add time series to show Pr - SG

Missing values P2 – test code should run with stations that have precip but no temperature – LC/SG tested and doesn’t work. SG to fix.

Missing values, P2 – change climatology criteria to 20 years from percentage - SG

Variograms, P3 – example start/end years should be 1981-2010 - JK

Various scripts P3,P4 – option 8 does not work - JK

Regional average P4 – fix matrix inversion for PrA - JK

Regional average P4 – test different resolution choices for Tanzania and Morocco – LC/FD

User experience Pall – more descriptive text output (e.g max range in interactive variogram) - JK

User experience Pall – ensure that all “examples” and defaults in the code are correct - JK

Regional average P4 – add km to resolution question - JK

Diagnostic P3 – y-axis minimum of zero enforced for variograms - SG

Diagnostic P3 – remove green line from variogram plots - JK

Diagnostic – interactive variogram intermediate variograms not displaying correctly on PC. – JB to illustrate problem (quick fix to change size of image)

Missing values P2 – quick fix for PrAn if climatology == 0 then PrAn <- missing – LV (SG)

The urgent changes are to be made before the end of March when they will be consolidated (Action JK) and sent back out to the team for final testing. The user manual will also be updated to reflect any changes to the code (Action LV). This will bring the software up to version 1 ready for release. Version 1 of the code and user manuals will be uploaded to the Github repository (Action JK).

With the code being developed for operational use, with a wide range of users needing to regularly run the code to generate NCMPs, the possibility of setting up a NCMP “service desk” was discussed. The “service desk” would involve one or more experts on the NCMPs and, ideally, the NCMP code, whether that be members of an Expert Team, or involve regional experts at RCCs. The “service desk” would respond to user queries in a timely fashion and generate a list of frequently asked questions that could be incorporated into the user manuals.

The code is currently archived at Github from where it can be easily downloaded by anyone with an internet connection. The repository is currently “owned” by JK and the Bureau of Meteorology has undertaken to maintain the code at least for the immediate future. Updating of the software, guidance and user manuals would best be handled by the ET-OCM. Issues with the code that are raised by FPs and other users can be captured as issues on Github.

**Agree on NCMP implementation steps including NCMP dissemination**

The steps for implementation within the scope and remaining time of the ET-NCMP were discussed in some detail with a focus on what we can achieve in the short time remaining to the ET-NCMP and how to pass information the the ET-OCM to help them in their travails.

The remaining steps for this team were:

1. Finalise software and user manual by the end of March (SG, LV, JK).
2. Final test of software and update of user manual (All)
3. Provide information for ET-OCM by the end March (JK to collate):
   1. Plan for Focal points (testing, roll out of code, feedback survey, implementation and reporting)
   2. Capacity building recommendations (based on materials developed at the Melbourne meeting)
   3. Dissemination (summary of existing discussions from previous meetings)
   4. Notes on software management
4. Produced two page summary of the accomplishments of ET-NCMP and guide for ET-OCM. (Action LV, review by All)
5. Short meeting report and presentations on web page (Action JK)
6. Send deliverables to Peer for WMO website (Action JK)

Regarding dissemination, the current simple plan, to send the NCMPs to the WMO at a standard email address (as listed in the user manual), was deemed sufficient for the time being. At previous meetings, we have discussed a more formal process involving CBS and CLIMAT-like messages, but the new ET-OCM will be better placed to take this idea forward as the feedback was that submissions to CBS for new messages requires a certain degree of maturity that will not be achieved until more testing has been undertaken with the focal points.

**Outline of communication and capacity building strategies and next activities**

The team discussed communication and capacity building strategies extensively at the Melbourne meeting. As there has been little additional work in this area since then, the focus being on the guidance and software, it was decided to summarise the outcomes from the Melbourne meeting. It was noted that if the new ET-OCM wishes to make use of funds available for 2018 for a workshop, planning will have to start soon.

Communication with the Focal Points was also briefly discussed. The guidance is now published and the software and user manual will be finalized soon. The ET-OCM will oversee the dissemination of guidance and software to focal points. It was suggested that when the guidelines and software release are announced that a follow up request for Focal Point nominations be sent the NHMSs. The ET-NCMP will assemble a list of monitoring contacts within in NHMS that for countries that have not yet nominated a focal point. It might help to increase the number of focal points successfully nominated if the official letter asking for further nominations is accompanied by a less formal note to contacts to inform them that the letter has been sent to PRs.

The ET-OCM will have to collect and act on feedback from focal points regarding the implementation of the software in NHMSs as well as preparation and dissemination of NCMPS. The terms of reference from the FPs, which were sent out with the letter asking NHMSs to nominate focal points, have certain communication responsibilities which require contact with the ET-NCMP. As the ET-NCMP will no longer exist, the FPs will have to communicate with ET-OCM.

TERMS OF REFERENCE for FOCAL POINTS

* To collaborate with ET-NCMP on identifying existing national sources for climate monitoring products and related capacities as well as related training and capacity building needs;
* To raise awareness of the NMHS staff and other relevant stakeholders on the need for and the importance of NCMPs;
* To facilitate the calculation of NCMPs including its dissemination via agreed protocols;
* To prepare and submit feedback to ET-NCMP on the challenges and the need for improvement emanating from the preparation and dissemination of the NCMPs.

**Draft ToR for NCMP-related work in the next CCl intersessional period**

The work of the ET-NCMP was reviewed. Fatima introduced the new draft expert teams and the draft terms of reference of the ET-Operational Climate Monitoring. The difficulty of achieving the aims of the new expert team with a similar or smaller number of people was noted. There was also some concern that moving to an implementation phase without ongoing development could lead to the NCMP implementation becoming gradually less relevant. The value of collocating CCDI and NCMP work within one ET was discussed, including the possibility of harmonising software, processes and combining efforts on planning and running workshops.

Numerous possible interactions between the NCMP-related work of the ET-OCM and other focus areas in the draft CCl structure were noted. In particular, software developed in the sector specific indices has some relationship to the R-Climdex software adapted by the ET-NCMP. Some coordination between teams with regards to index software could help limit the further duplication of effort. The value of NCMPs for policy support via inclusion in the WMO annual statement and through climates services was also raised.

Bearing these things in mind, the following draft terms of reference were agreed upon.

1. Ensure communication and dissemination of latest software and guidelines for operational production of NCMPs to NHMS and Focal Points;
2. Put in place mechanisms for maintenance of software and guidance, including feedback from users and FPs.
3. Conduct assessment of the existing/progress capabilities for national climate monitoring on a regular basis, including through workshops and interaction with focal points;
4. Collaborate with other groups such as the relevant CBS teams regarding the exchange of NCMPs, and liaise with World Data Centres as appropriate on scientific and technical guidance;
5. Monitor ongoing relevance and usefulness of NCMPs through feedback from NHMS and need for extending the list of NCMPs.
6. Monitor production of NCMPs in NHMS and use of NCMPs such as the WMO annual statement

**Final steps and actions**

* Finalise software– LV, SG, JK
* Run tests for Brazil - AR
* Final test of software by end of March - everyone
* Update user manual – LV
* Capture remaining issues and put code and user manuals on github - JK
* Everything on web (user manual, code) and finalised – JK
* Send presentations to John – Everyone
* Presentations on website – JK
* Two page summary for next ET – LV to draft
* Gather materials to pass on to next ET – JK
* Draft meeting report circulated – JK
* Send deliverables to Peer for WMO website - JK

**Annex A - Additional changes to the user manual**

* Variograms need more explanation and better support for users. Examples with physical interpretation would help. Examples of “difficult and easy” variograms with worked examples would provide clearer guidance to new users who are unfamiliar with the concepts.
* Add units to NCMP definitions in the introduction
* Need to add warning in user guide for users about the concerns that might arise from deriving records from homogenised data.
* NCMP6 description needs correcting. Requires some explanation to support the users
* Update the version number of the user manual
* R version number descriptions needs to be aligned across code and manuals.
* John to write line for user manual about where to send bugs and requests (John or Git). Who can raise issues on git?