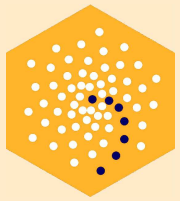

ETCCDI status and plans

March 15, 2017

New Expert Teams - new indices

- WMO Expert Team on Climate Risk and Sector-specific Climate Indices

WMO COMMISSION FOR CLIMATOLOGY

ect ral Impacts Climate Extremes T e Expert Tea m n Climate is and ect r- peci ic Climate Indices ET-C CI

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** On behalf of the Expert Team on Climate Risk and Sector-Specific Climate Indices*

Intr ducti n

The Commission for Climatology has a long-standing and well respected approach of high uality analysi s, assessment and detection of trends in climate extremes, through the activities of the Expert Team on Climate Change etection and Indices ETCC I . With the advent of the lobal ramework for Climate Services CS and the intent for CS to provide climate information and services to meet user re uirements, new work is now underway to identify the sectoral applications of the ETCC I indices and associated software.

In cooperation with WMO and Sector experts in agricultural meteorology, water resources and health, the new Expert Team on Climate Risk and Sector-Specific Climate Indices ET-CRSCI is working to identify and evaluate additional sector-specific indices, both single- and multi-variable types, to define both simple and complex climate risks of interest to user groups.

ecti e

ET-CRSCI will build on the work of ETCC I but the focus will be on identifying impacts-driven indices that are relevant to health, agriculture and water sectors.

Example n t e imp rtance indices

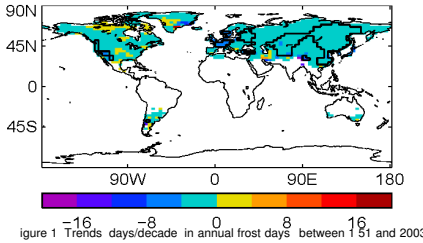
rom an agriculture and food security perspective, understanding trends and variations in frost days see ig. 1 is important for addressing issues related to plant maturation, plant health productivity, free e in ury etc.

Deli era les

Collection and analysis of existing and new secto ral-specific climate indices
evelop tools, standardi ed software and training materials to produce sector-specific climate indices
Run pilot training workshop on development of the indices

ims

evelop methods and tools including standardi ed s oftware for, and to generate, sector-specific climate indices, and methodologies to define simple and complex climate risks
Promote the use of sector-specific climate indices to bring out variability and trends in climate of particular interest to socio-economic sectors
evelop training materials to raise capacity and p romote uniform approaches around the world in applying these techni ues
Work with sector-based agencies and experts, including those of relevant WMO Technical Commissions, to facilitate the use of climate information in users decision-support systems



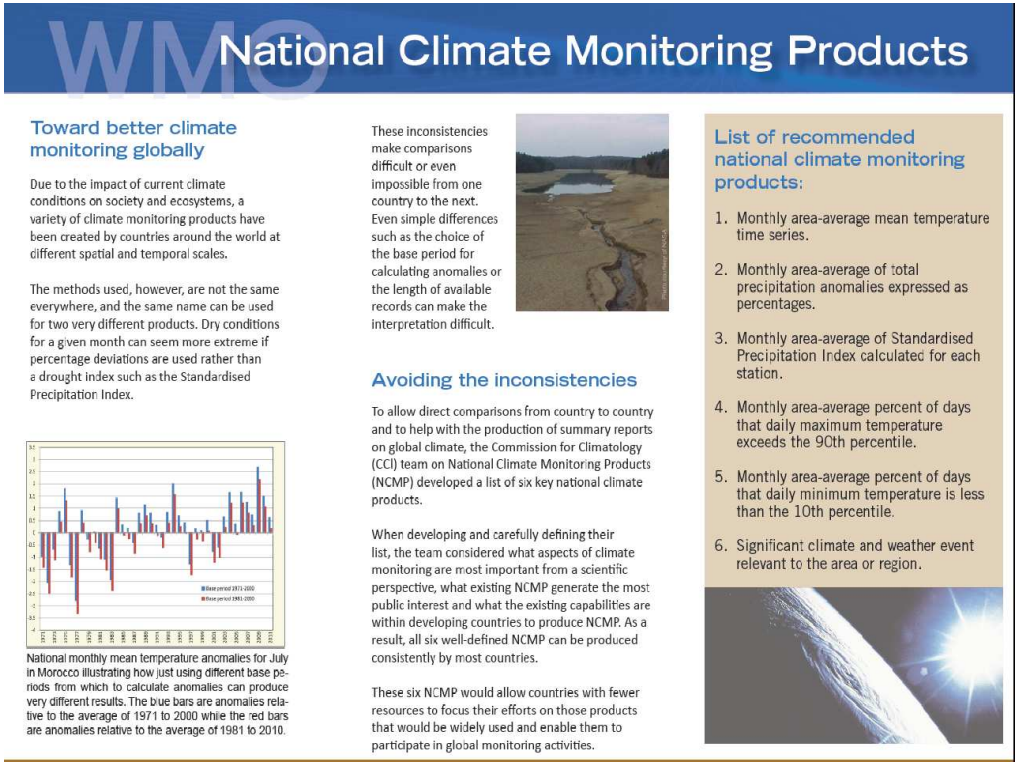
igure 1 Trends days/decade in annual frost days between 1 51 and 2003. Black lines enclose regions where trends are significant at 5 level Adapted from Alexander et al., 200 . *J. Geophys. Res. Atmos. D05109, doi:10.1029/2005JD006290*

Climate Indices r ect ral pplicati ns

WCRP OPEN SCIENCE CONFERENCE 2011 | DENVER, COLORADO, USA

New Expert Teams - new indices

- WMO National Climate Monitoring Products?



WMO National Climate Monitoring Products

Toward better climate monitoring globally

Due to the impact of current climate conditions on society and ecosystems, a variety of climate monitoring products have been created by countries around the world at different spatial and temporal scales.

The methods used, however, are not the same everywhere, and the same name can be used for two very different products. Dry conditions for a given month can seem more extreme if percentage deviations are used rather than a drought index such as the Standardised Precipitation Index.

National monthly mean temperature anomalies for July in Morocco illustrating how just using different base periods from which to calculate anomalies can produce very different results. The blue bars are anomalies relative to the average of 1971 to 2000 while the red bars are anomalies relative to the average of 1981 to 2010.

These inconsistencies make comparisons difficult or even impossible from one country to the next. Even simple differences such as the choice of the base period for calculating anomalies or the length of available records can make the interpretation difficult.

Avoiding the inconsistencies

To allow direct comparisons from country to country and to help with the production of summary reports on global climate, the Commission for Climatology (CCl) team on National Climate Monitoring Products (NCMP) developed a list of six key national climate products.

When developing and carefully defining their list, the team considered what aspects of climate monitoring are most important from a scientific perspective, what existing NCMP generate the most public interest and what the existing capabilities are within developing countries to produce NCMP. As a result, all six well-defined NCMP can be produced consistently by most countries.

These six NCMP would allow countries with fewer resources to focus their efforts on those products that would be widely used and enable them to participate in global monitoring activities.

List of recommended national climate monitoring products:

1. Monthly area-average mean temperature time series.
2. Monthly area-average of total precipitation anomalies expressed as percentages.
3. Monthly area-average of Standardised Precipitation Index calculated for each station.
4. Monthly area-average percent of days that daily maximum temperature exceeds the 90th percentile.
5. Monthly area-average percent of days that daily minimum temperature is less than the 10th percentile.
6. Significant climate and weather event relevant to the area or region.

recurring issue

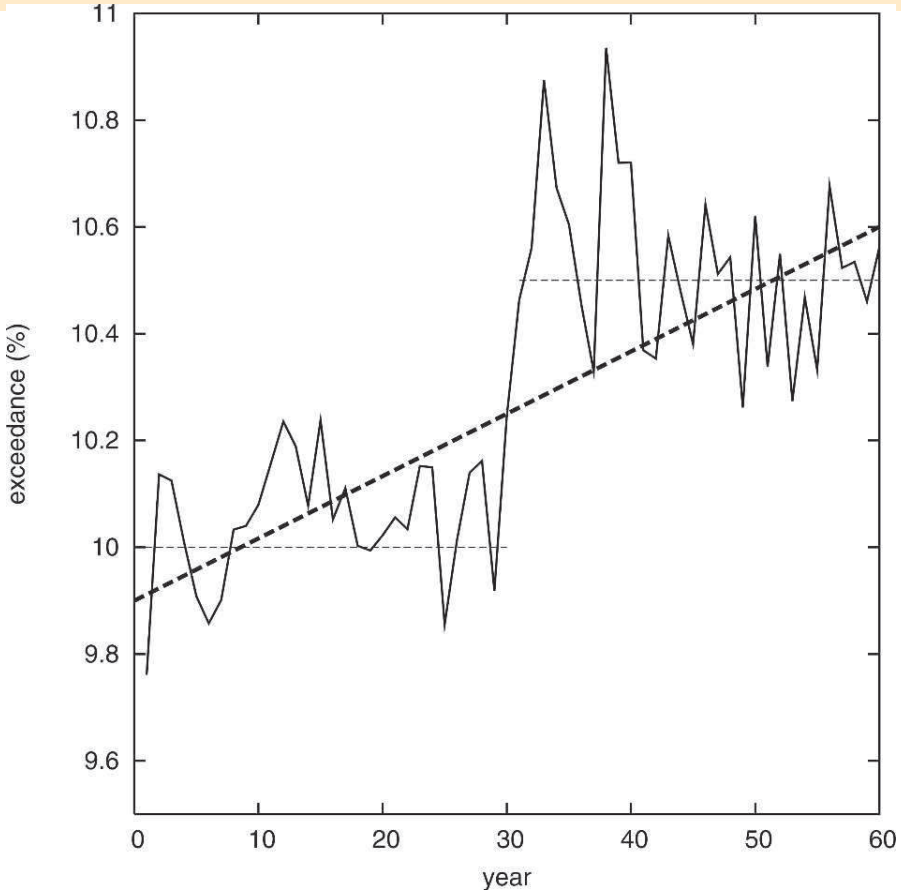


FIG. 1. Average of exceedance rate of daily values greater than the 90th percentile in 1000 simulations in which the lag 1-day autocorrelation has been set to 0.8. Thresholds are estimated using data from a 5-consecutive-day moving window and the empirical quantile as defined in the text. The first 30 yr are used as the base period. A jump (increase) in the exceedance rate is apparent at the boundary between the in-base and out-of-base periods, as indicated by 30-yr averages (thin dashed lines). Because of this jump, a highly significant trend (thick dashed line) can be identified if a linear trend is fitted to the exceedance time series, even though there is no trend in the simulated data.

Some software packages do not employ the bootstrap resampling procedure to calculate percentiles

Zhang et al. Avoiding Inhomogeneity in Percentile-Based Indices of Temperature Extremes, J. Climate, 2005