



The International Research Institute for Climate and Society

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BACK TO OFFICE REPORT SUMMARY <i>To BTO report readers: to view all parts of the report, exit Microsoft Word's reading layout view by pressing ESC or ALT+C.</i>		Travel Request Form #: _____
Submitted by: Simon Mason Bradfield Lyon	Accompanying documents:	
Visit to: National Hydro-Meteorological Service (NHMS), Hanoi, Vietnam		
Dates of travel (inclusive) From: 7 November 2019 To: 15 November 2019	Co-travelers Dannie Dinh John Furlow	
Funding source(s): ACToday		
Primary Objectives Provide NHMS trainees with the expertise to understand how to use output from the Climate Predictability Tool (CPT) to configure and interpret seasonal forecast models that are based on sea-surface temperature observations and climate model outputs.		
Secondary Objectives Should we link to John and Dannie's report on the NFCS?		
Distribution: Nachiketa Acharya, Walter Baethgen, Elva Bennet, Dannie Dinh, John Furlow, Lisa Goddard		

Main objectives of travel (Specify the type of work that had to be accomplished)

From 7 - 15 November 2019, a training workshop on seasonal prediction was held in Hanoi at the national meteorological service. Training was provided by Drs B Lyon and SJ Mason; language translation services were provided by a local consultant with a higher education degree in physics.

The workshop involved a recap of training provided in April of 2019, as well as new material. The specific aim of the recap was to provide trainees with the expertise to understand the how to use output from the Climate Predictability Tool (CPT) to configure and interpret seasonal forecast models that are based on sea-surface temperature observations and climate model outputs. These topics were introduced in the April 2019 workshop, but are highly complex topics. We also provided further training on drought prediction, which included reiteration of the forecast methodology (combining rainfall observations with rainfall forecasts) and the interpretation of forecast results through use of probability of non-exceedance curves.

Training on validation and verification was provided in much more detail than was possible in April. The training in November focused on understanding CPT's goodness index, the identification and interpretation of the most useful validation scores, the estimation of forecast probabilities, and the interpretation of some of the verification scores. What was not covered that will need to be addressed at a later date is a comprehensive explanation of the ROC (relative operating characteristics).

We provided more time for hands-on training this time and were able to begin examining the predictability of seasonal weather statistics, such as frequencies of hot and cold days as identified by NHMS. We created a simple Fortran program to perform the counts of such days and to save data in CPT format. We were unable to investigate the prediction of tropical cyclone counts primarily because of data availability. Historical tropical cyclone tracks are easily available, but a definition of which cyclones are of interest to Vietnam needs to be set before the counts can be computed.

New options in CPT were implemented. The most important new option produces probability of non-exceedance curves, which are a more intuitive way of presenting drought information than are the regular probability-of-exceedance curves that are the staple of the "flexible format" forecasts. Other changes include inclusion of the NASA GEOS2S model in the data download options, numerous miscellaneous enhancements to output and functionality, and some bug fixes.

The core staff showed good progress in understanding over the course of the November training. Some additional staff trainees were highly passive participants, and it is difficult to assess their level of comprehension. Including tests in training workshops can be a sensitive topic, but we should raise the idea of using them with the meteorological service so that we can better monitor what areas that require further attention.

General objective

Not sure what this section is for; objectives were listed above

Specific objective

Targeted Countries:

Vietnam

Persons Met/Interviewed Title/Organization/Area of Interest

Do we have a list of trainees?

Recommendations/Actions to be taken:

1. Training on the generation and use of ROC curves in the evaluation forecast quality.
2. With input from NHMS to define the spatial domain of greatest interest, undertake experimental prediction of tropical cyclone counts on the seasonal timescale.
3. Training of NHMS staff on running CPT in batch mode, and conceptual introduction to the automation of a seasonal forecast system.
4. Undertaking the joint design of an operational/experimental seasonal forecast system.
5. Work on developing tailored seasonal drought forecasts, with emphasis on the agricultural/ coffee sector, ideally in response to a direct demand from one of our in-country partners.
6. Implement an option within CPT to calculate seasonal and sub-seasonal predictands from daily input data