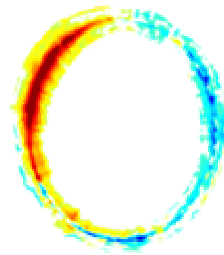


Climate Predictability Tool

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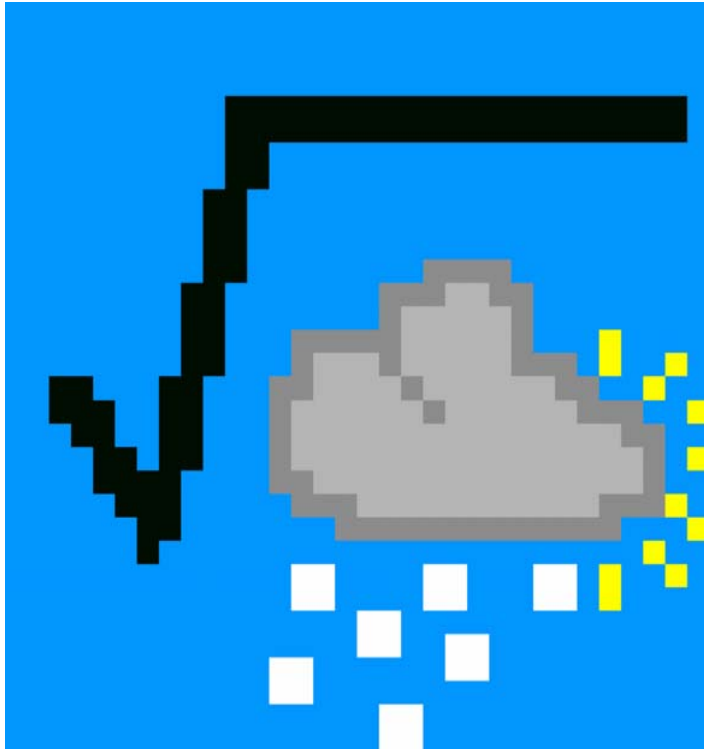
*First Session of South-Eastern Europe Climate Outlook Forum
(SEECOF-1)*

Zagreb, Croatia, 11 – 12 June, 2008



What is CPT?

Climate Predictability Tool (CPT) is an easy-to-use Windows-based software package for making downscaled seasonal climate forecasts.

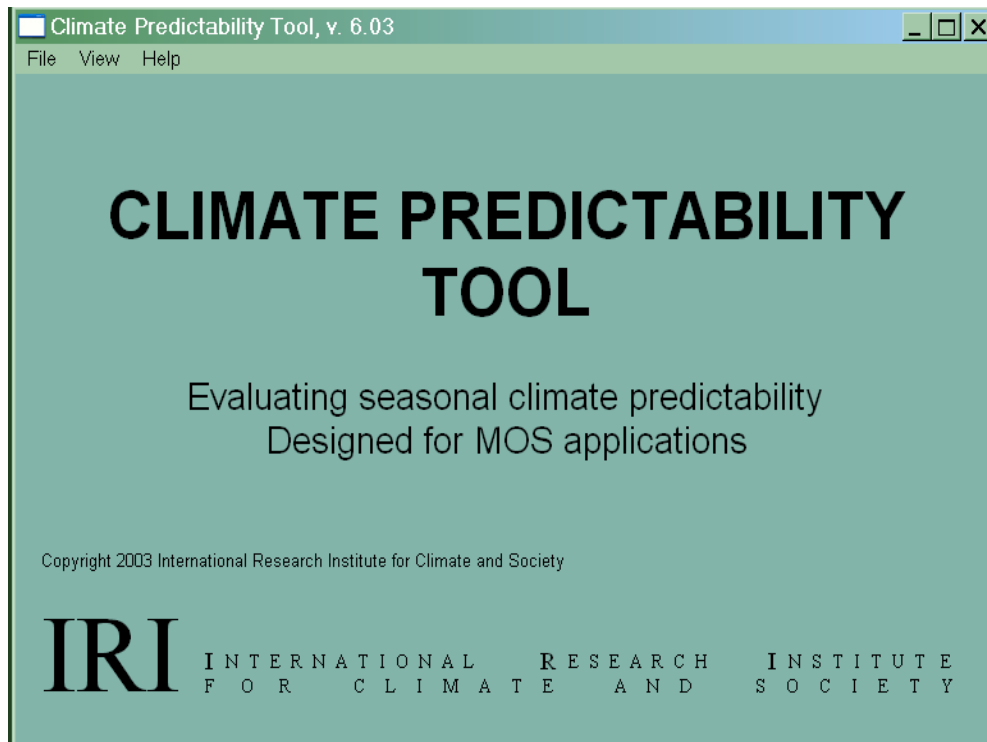


It runs on Windows 95+. A source code version, which has no GUI or any of the graphics capabilities, is available for other platforms.



What is CPT?

Specifically, CPT is designed to produce statistical forecasts of seasonal climate using either the output from a GCM, or fields of sea-surface temperatures.

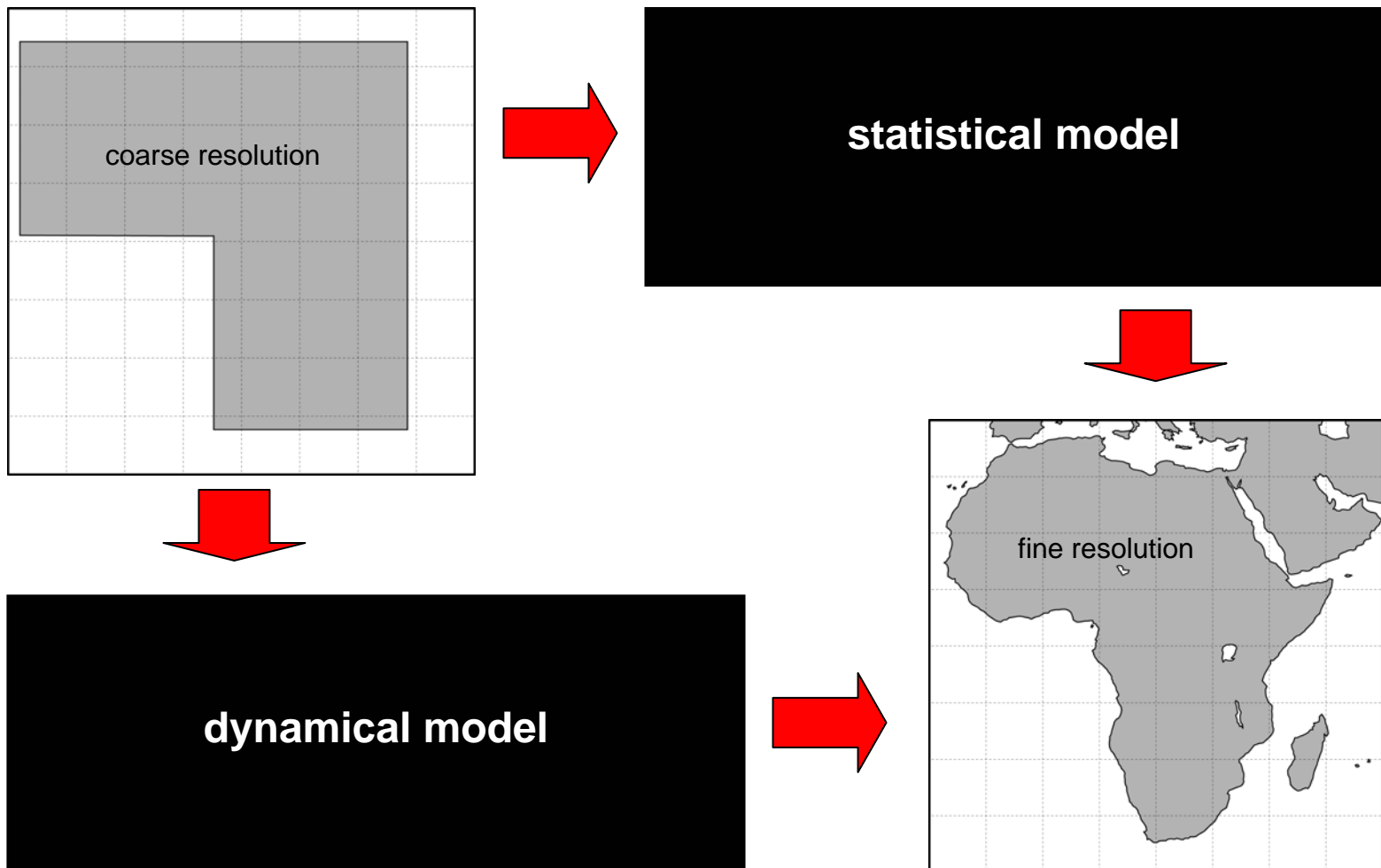


The program provides extensive verification tests, including most of the WMO CBS SVSLRF.



What is CPT?

- Downscaling – the translation of a forecast to a spatial and/or temporal resolution that is finer than that of the original forecast.



Downscaling

There are two types of reasons for downscaling:

- 1) the forecasts are required at a finer resolution than available;
- 2) the forecasts are systematically in error.

Most downscaling techniques attempt to address both problems at the same time.



What is CPT?

Thus CPT is both a statistical prediction tool, and a statistical downscaling tool.

Identical statistical techniques are used in both cases. When the predictors are outputs from another model, the procedure is called model output statistics (MOS), but conceptually there is no difference from a standard statistical forecast model.



Why CPT?

The primary motivation for developing CPT was to address some problems that had arisen in producing seasonal climate forecasts at a number of the COFs. Specific problems that needed to be addressed:

- Slow production time made the pre-forum workshops expensive and prohibited the production of monthly updates;
- Artificial skill, and lack of vigorous performance evaluation;
- Unreliable estimation of forecast uncertainty.
- Very little consideration was given to GCM-derived predictions in the construction of the consensus forecasts.
- Forecast users unhappy with tercile-based forecasts.



Why CPT?

CPT addresses the COF problems by:

1. Being easy to use.
2. Performing rigorous validation tests.
3. Using principal components as predictors.
4. Using reliable methods for estimating forecast uncertainty.
5. Being designed to take gridded data (GCM output and SSTs) as predictors.
6. Providing flexibility to present forecasts in a range of easy-to-understand formats.



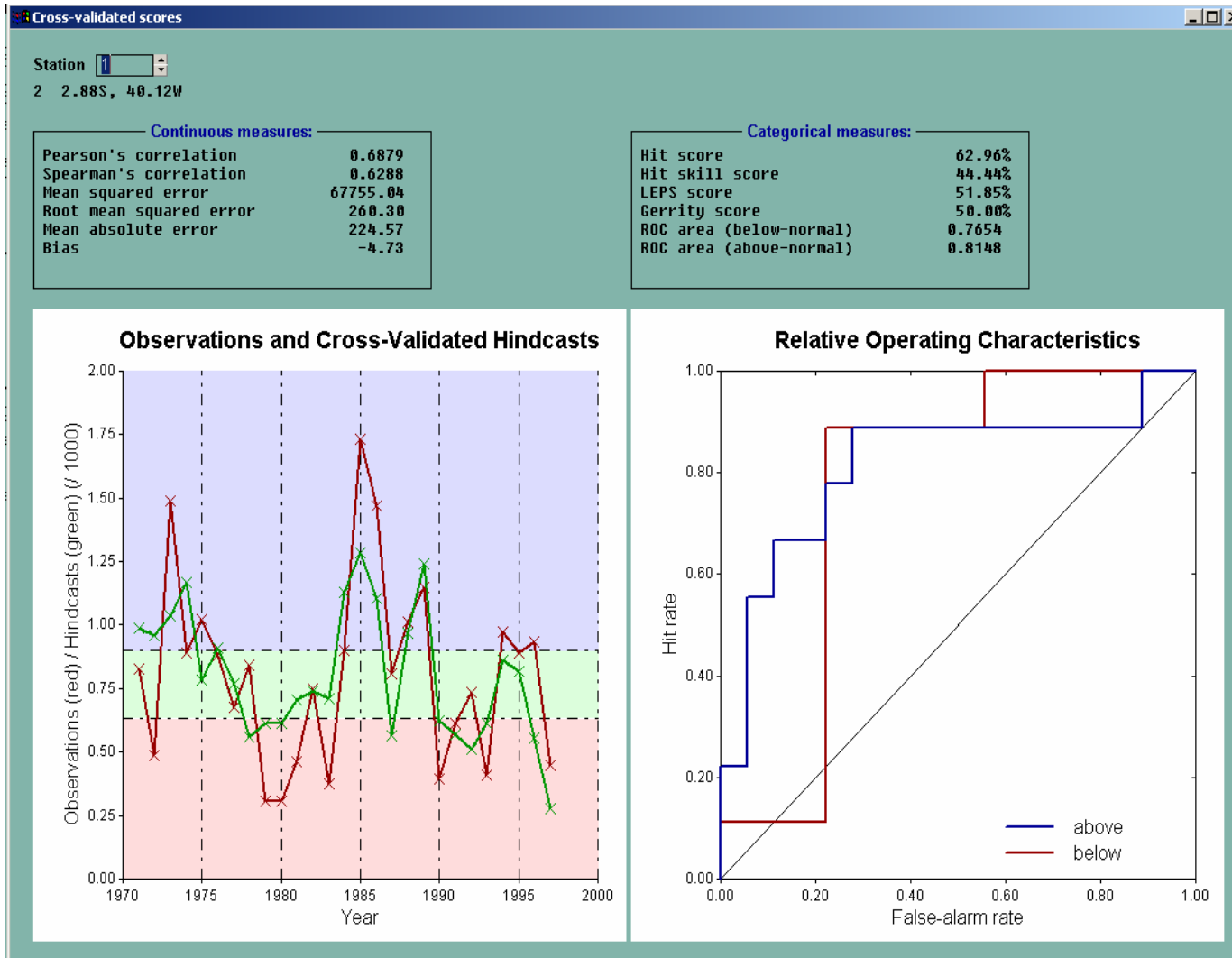
CPT Versions

The current version of CPT (version 9.05, June 2008) consists of over 26,000 lines of Fortran 90 code interfacing to the LAPACK SVD routines. However, the executable is only about 5 Mb.

The source code version of CPT consists of about 15,000 lines, and includes some C code for the data input/output.



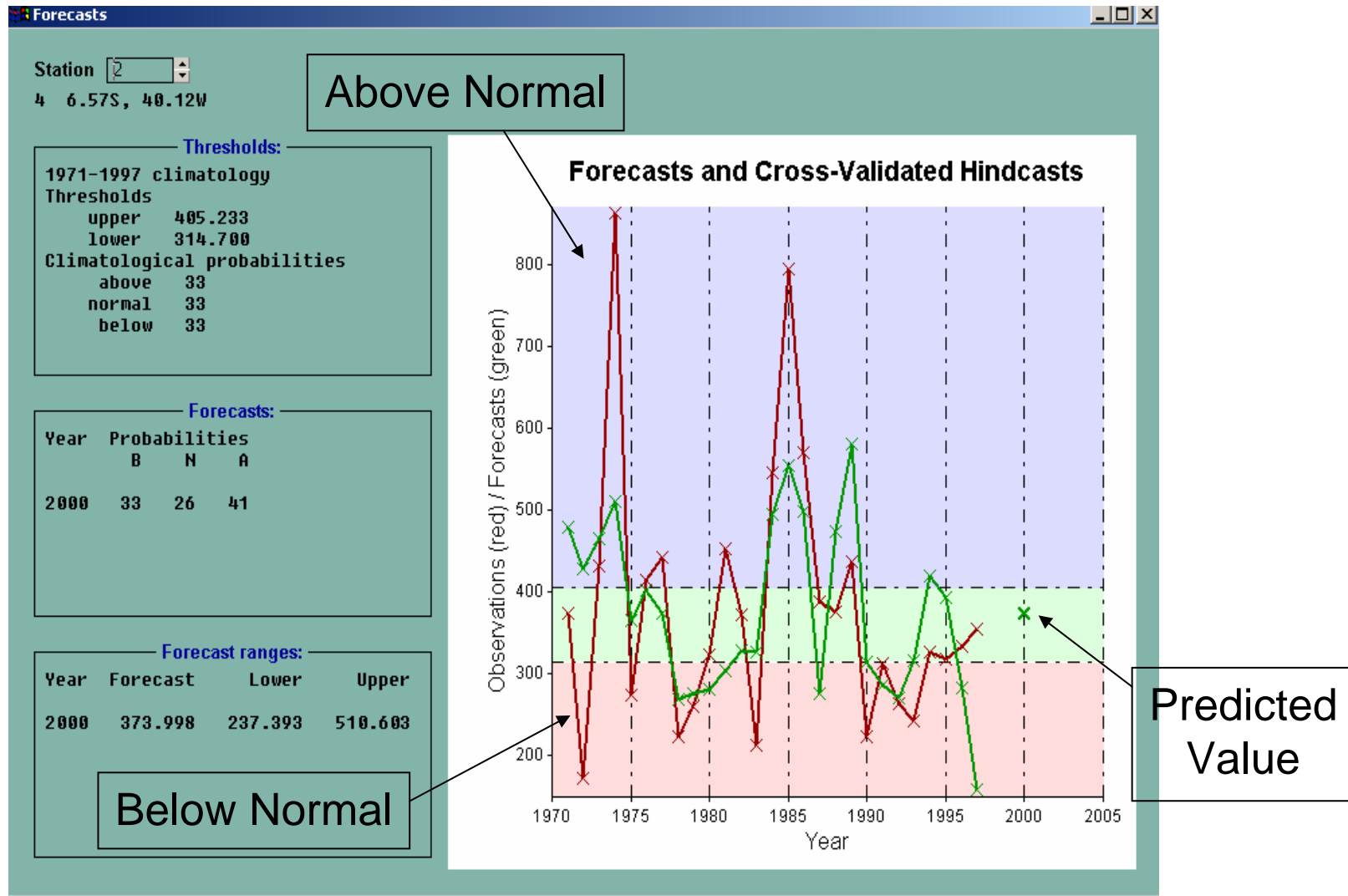
RESULTS



CPT provides extensive verification statistics



FORECAST



Forecasts can be made using updated values of the predictors. The forecasts can be tailored in a number of ways.

CPT SEECOF1 Forecast

Climate Predictability Tool, v. 9.05 - Results Window - Forecast probabilities ma... _ □ X

File Tools Customise Help

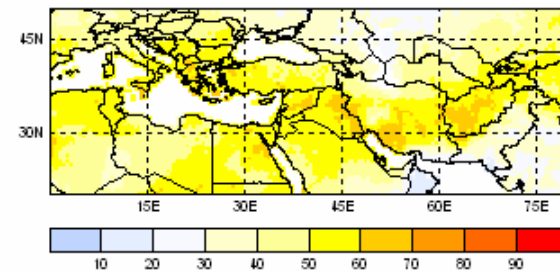
Forecast: 2008

Forecasts:

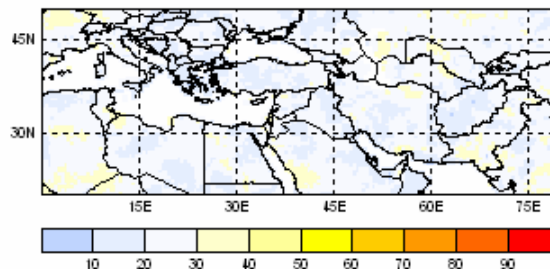
1968-1997 climatology

Lat.	Long.	Below	Normal	Above
49.75N	0.25E	30%	33%	37%
49.75N	0.75E	31%	34%	35%
49.75N	1.25E	32%	31%	37%
49.75N	1.75E	31%	34%	35%
49.75N	2.25E	29%	35%	35%
49.75N	2.75E	28%	38%	34%
49.75N	3.25E	28%	35%	37%
49.75N	3.75E	29%	35%	36%
49.75N	4.25E	31%	31%	38%
49.75N	4.75E	30%	28%	42%
49.75N	5.25E	29%	30%	41%

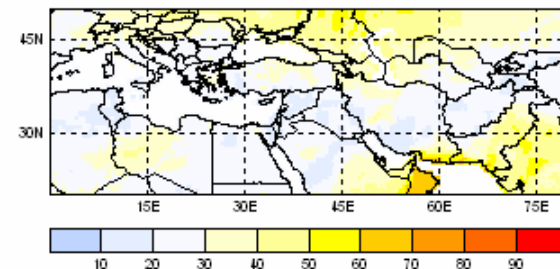
Above



Normal



Below



Where is CPT?

CPT is freely available from the IRI:

<http://iri.columbia.edu/outreach/software/>

