



# Climate Predictability Tool

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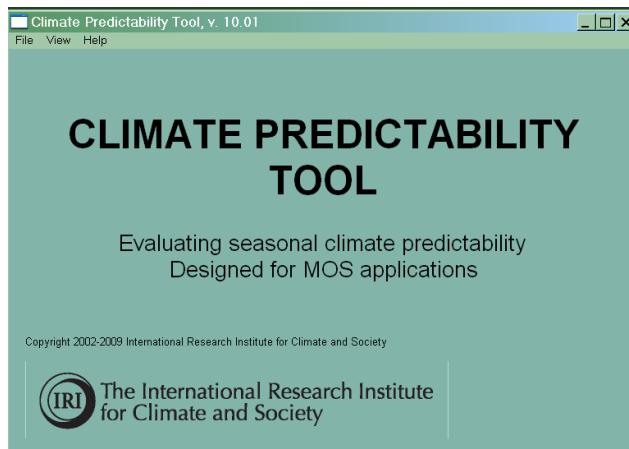
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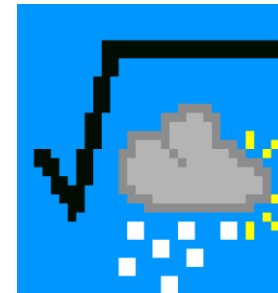
# What is CPT?

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

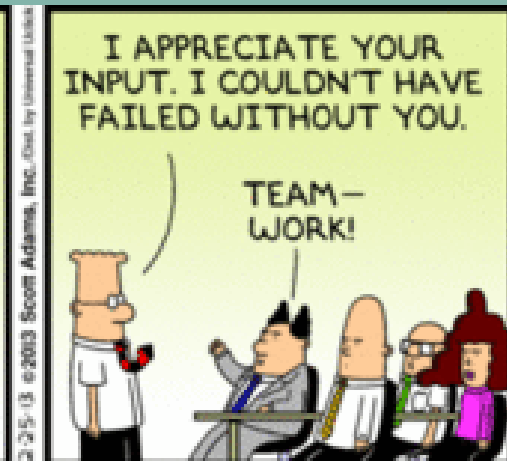
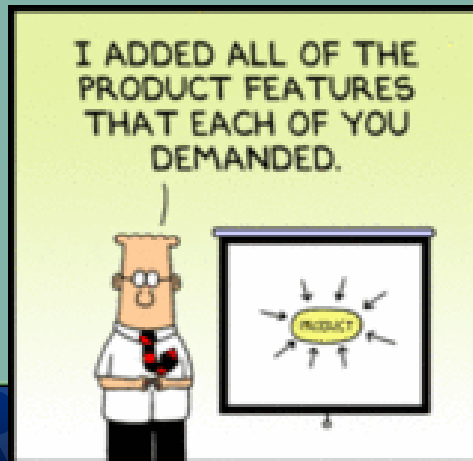
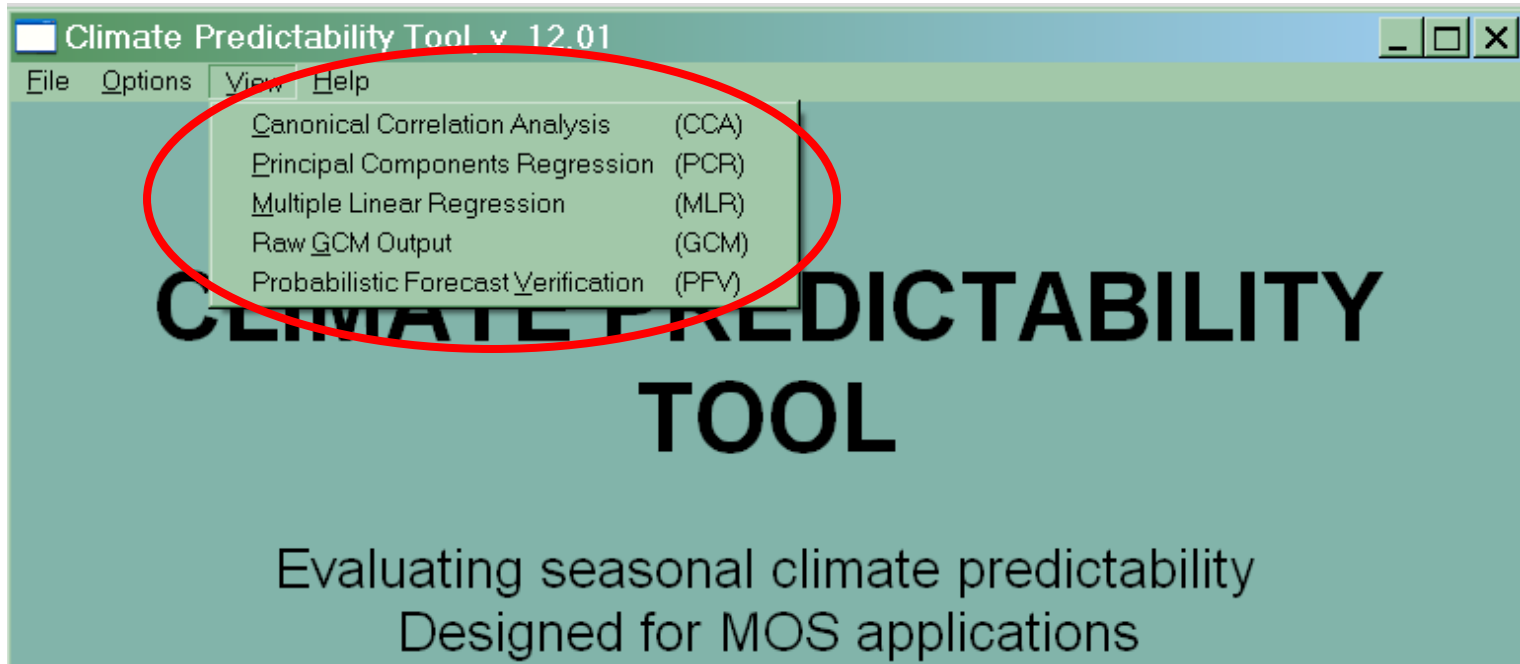


Versions:

- Windows 95+
- Batch



# What does CPT do?

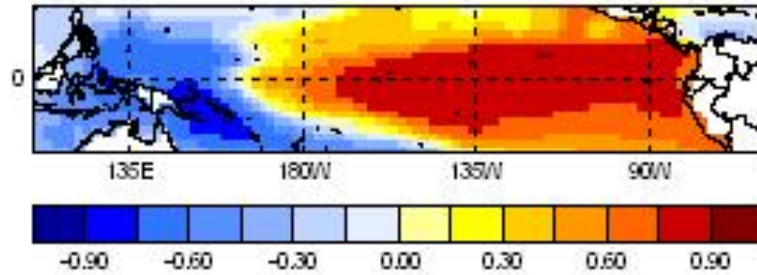


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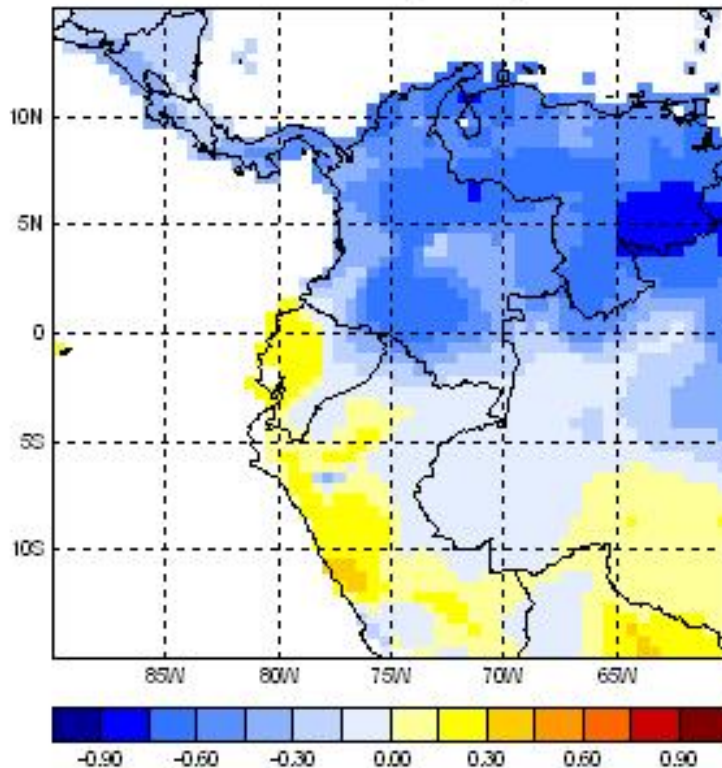
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# Model diagnostics

August SSTs (Mode 1)

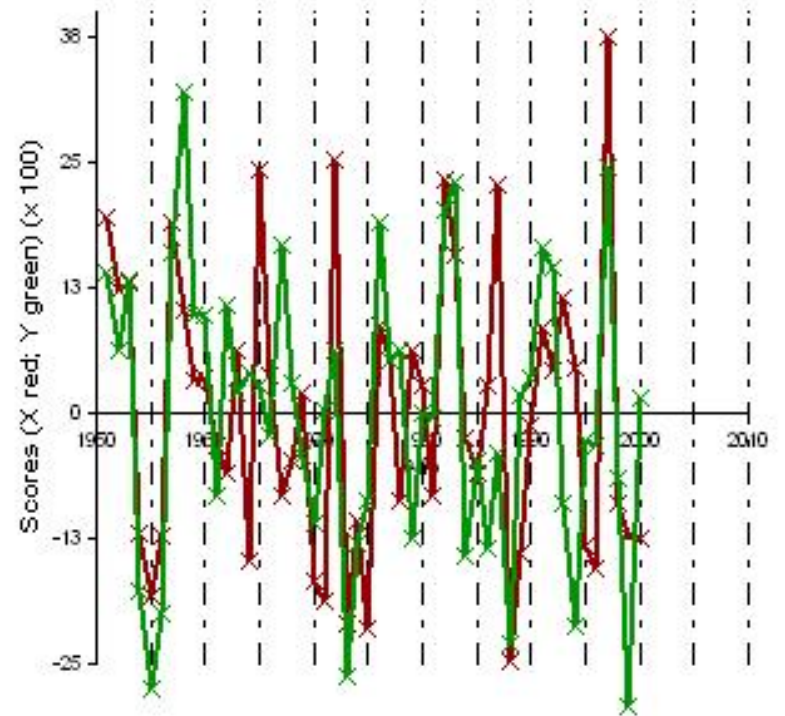


SON Rainfall (Mode 1)

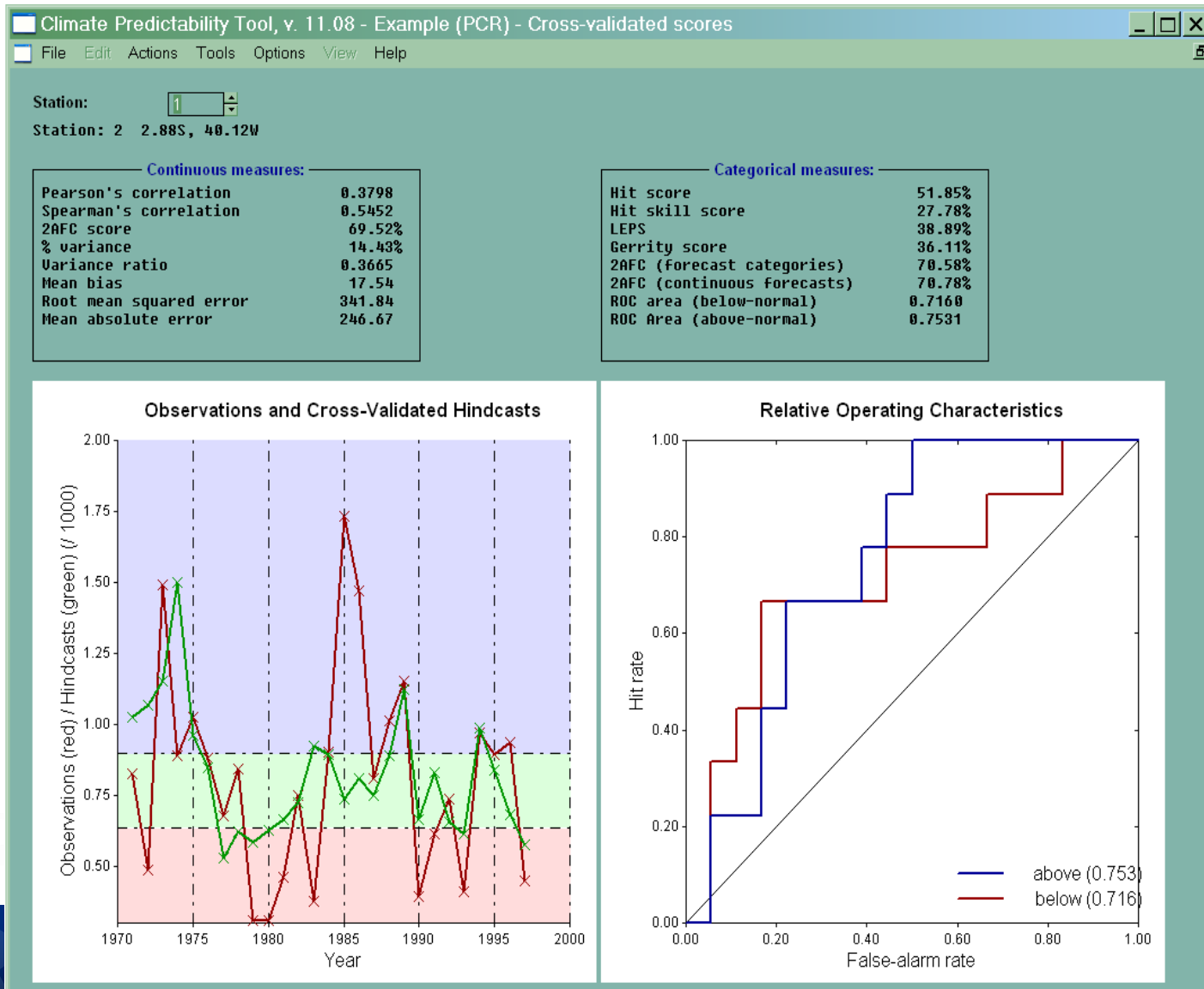


$r=0.60$

Temporal Scores (Mode 1)



# Cross-validation



# Retroactive forecasts and verification

Climate Predictability Tool, v. 11.10 - Bogota\_SST (CCA) - Attributes Diagrams

File Edit Actions Tools Options View Help

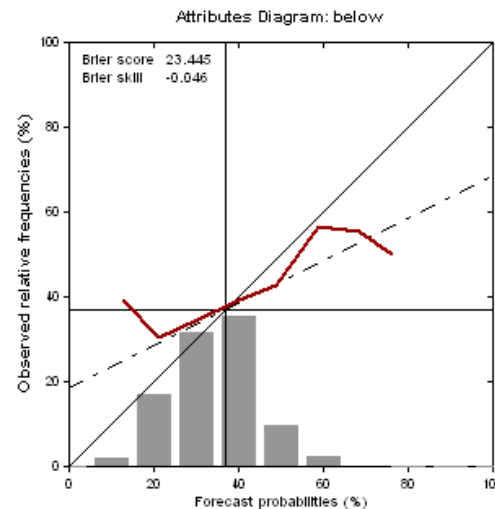
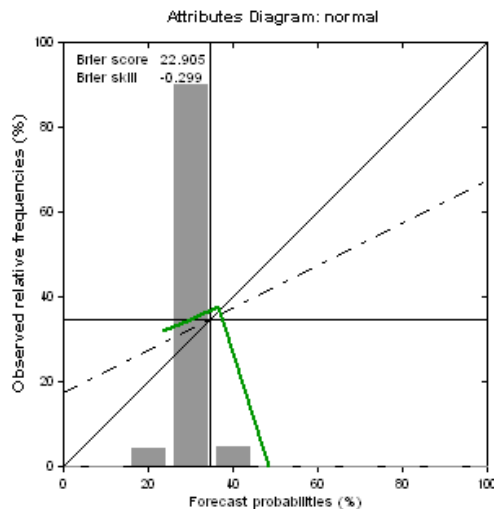
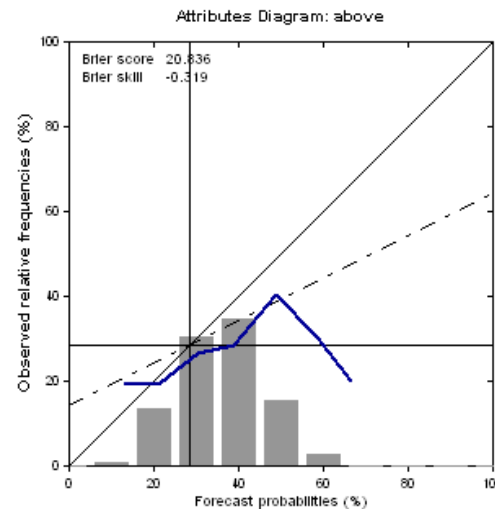
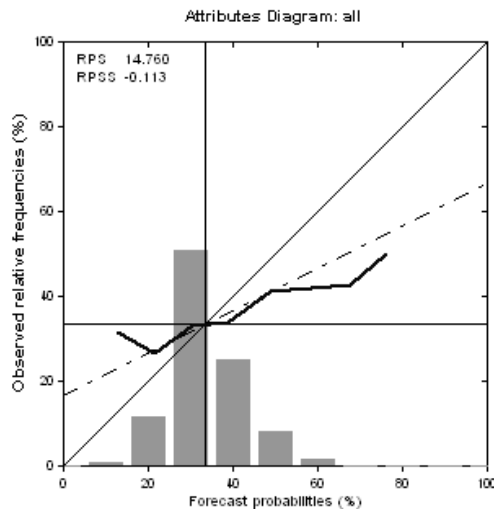
CPT performs verification of retroactive probabilistic forecasts:

Standard scores

Attributes (reliability) diagrams

ROC diagrams

Weather Roulette



# Real-time forecasting

Climate Predictability Tool, v. 11.10 - CPT\_tutorial (PCR) - Forecasts

File Edit Actions Tools Options View Help

Station:

Station: 2 2.88S, 40.12W

## Thresholds:

Climatology:

FMA 1971 to FMA 1997

Thresholds:

upper 899.  
lower 635.

above 33% 0.50  
normal 33% 0.50  
below 33% 0.50

## Forecasts:

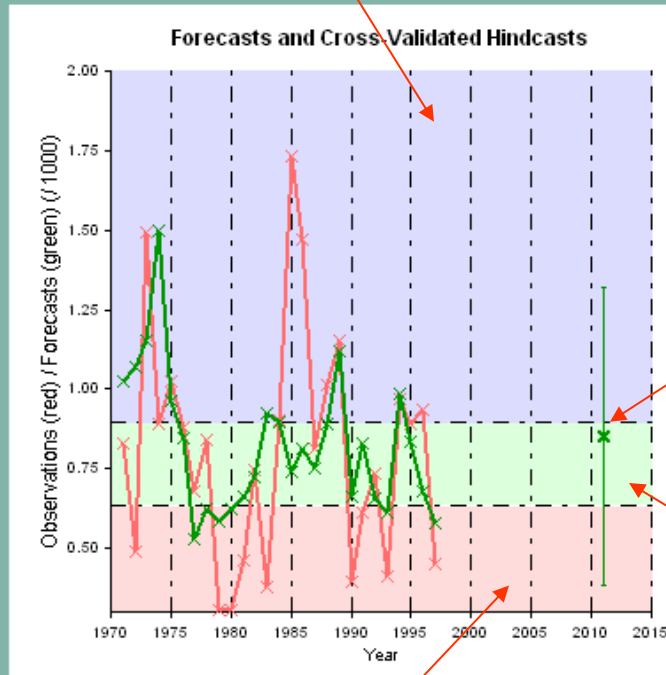
Probabilities:

Year	Probabilities			Odds		
	B	N	A	B	N	A
2011	32	22	46	0.47	0.28	0.85

Forecast ranges:

Year	Lower	Upper
2011	850.	1319.

Above-normal



Predicted Value

Normal

Below-normal

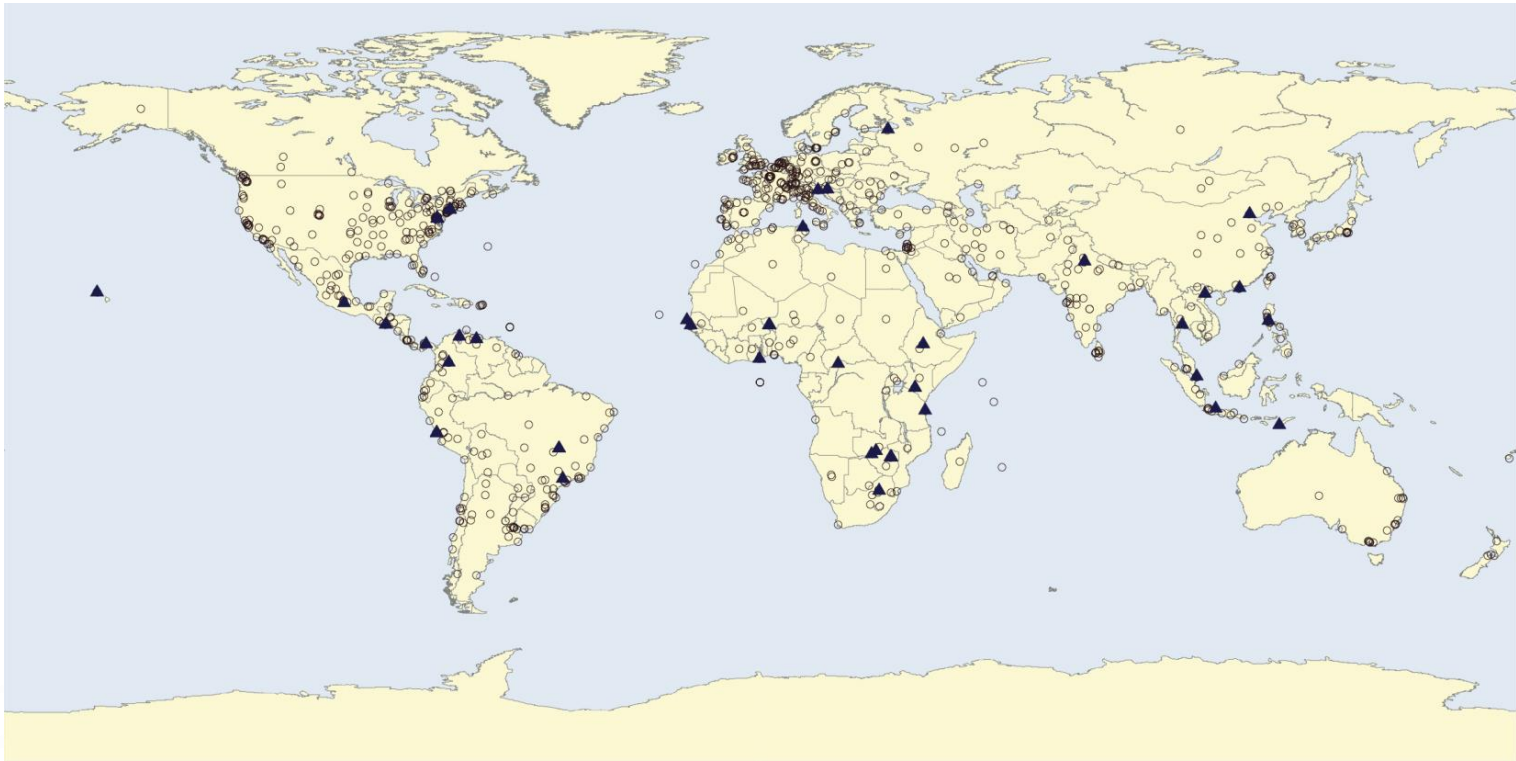
# History of CPT

- CPT 0 : MATLAB code for performing CCA and PCR
- CPT 1 : (Dec '02) translated into Fortran 77 interfacing to LAPACK SVD routines
- CPT 2 : (Aug '03) converted to Fortran 95; GUI; validation; new forecasts
- CPT 3 : (Feb '04) mapping of station data; handling of missing values
- CPT 4 : (Feb '05) improved graphics
- CPT 5 : (Aug '05) forecast uncertainty; WMO SVSLRF verification; tailoring
- CPT 6 : (Nov '05) multiple users; exceedance probabilities
- CPT 7 : (Aug '06) data transformation; improved retroactive procedure
- CPT 8 : (May '07) retroactive forecast probabilities and verification; MLR
- CPT 9 : (Mar '08) DLLs; major internal restructuring
- CPT10 : (Oct '09) multiple fields; ensemble forecasts; new verification procedures
- CPT11 : (Jan '11) multilingual interface; GCM validation; probabilistic verification scores; climatology maps
- CPT12 : (Oct '11) verification of independent probabilistic forecasts
- CPT13: (Mar '13) forecast combination; new verification procedures
- CPT14: (Nov '13) SPI forecasts and forecasts in context; interface to IRI Data Library
- CPT15: (Apr '15) multi-model predictors; sub-seasonal forecasts



# CPT Use

CPT downloads (circles) and known CPT courses (triangles) from 2003 to 2009.



# Availability and support

CPT is freely available from:

<http://iri.columbia.edu/cpt/>

The software contains an extensive set of help pages.

Tutorials and FAQ answers are available from:

<http://iri.columbia.edu/cpt/>

A Help Desk is available to answer questions:

[cpt@iri.columbia.edu](mailto:cpt@iri.columbia.edu)





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