



# DEVELOPMENT OF A WEB INTERFACE TO PROVIDE EXTERNAL ACCESS TO CPTEC/INPE CLIMATIC DATA



Luciana M. Castro Mira

Bianca Antunes Alves, Ana Paula Tavares, Luiz Henrique Coura, Felipe O.Mello, Marcos R. Araújo, José Roberto Garcia, Waldenio Gambi Almeida  
email: mira@cptec.inpe.br

National Institute of Space Research -INPE, Center for Weather Forecast and Climatic Analysis -CPTEC  
Rod. Presidente Dutra km 40 - 12630-000 Cachoeira Paulista –SP

## Summary

This paper describes a visualization and distribution system for climatic data that are stored in CPTEC/INPE database (Center for Weather Forecast and Climatic Analysis) from INPE (National Institute of Space Research). This project was supported by PROTIM program (Program of Information Technology applied in Meteorology). This work consists in the development of a Web Interfaces for external access and visualization of time-series data for many stations in South America.

## INTRODUCTION

The Climatology studies the atmospheric phenomena using statistical registers (average and variability) to characterize the climate in function of the geographic localization, station of the year, hour of the day, etc. These data and statistical relations, average values, normal values, frequency of variations and distribution of the meteorological events are very important for the scientific community. With the observational data collected in stations it is possible to characterize the climate. Many of the informations collected in Brazil have been added to our climate data base.

In this work the objective was to build an web interface to make easy and fast the climatological data retrieval for researchers and general users. These information will be available in a Home Page together with all the other interfaces of the PROTIM Program. Of course that the distribution of these data will have to respect the rights of property of the data and in some cases could need previous authorization.

## THE SYSTEM'S ARCHITECTURE

The database that stores the climatic data is the MySQL and the webpages are in JAVA. The climatic database of the CPTEC/INPE stores data received from several institutions, some of these dated of century XIX.

## STATISTICS ABOUT THE CLIMATIC DATA

In the database there are Monthly means, Daily and Extreme values. The available variables in the database are: maximum temperature, minimum temperature, mean temperature and precipitation. The temperatures are measured in Celsius Degree °C and the precipitation in millimeters mm. For the monthly data there are temperatures maximum, minimum, average and precipitation. For the daily and extreme data we have the maximum temperatures, minimum and precipitation.

The developed site allows the user to visualize graphically several informations. The graphs contains the climatic data for a period of time. In the database of the CPTEC/INPE fifteen (15) extreme values for each station are available. These data will be presented in the table format. These data will be available for download in CVS, Excel and XML format.

Extremos					
< voltar					
Temperatura Máxima		Temperatura Mínima		Precipitação	
Data	Temperatura (°C)	Data	Temperatura (°C)	Data	Precipitação
08-01-2001	35.0	09-08-1999	6.0	11-11-1998	49.0
09-03-2002	33.0	13-07-2000	4.0	28-10-1999	63.0
30-03-2002	34.0	14-07-2000	2.0	09-11-1999	43.0
26-11-2002	37.0	16-07-2000	6.0	03-02-2000	62.0
01-12-2002	35.0	17-07-2000	1.0	16-02-2000	89.0
02-02-2003	33.0	20-07-2000	1.0	12-09-2000	47.0
03-02-2003	34.0	21-07-2000	3.0	29-12-2000	90.0
04-02-2003	34.0	24-07-2000	2.0	26-12-2000	71.0
06-02-2003	36.0	25-07-2000	2.0	04-02-2001	165.0
07-02-2003	35.0	28-07-2000	6.0	05-02-2001	144.0
09-02-2003	34.0	27-07-2000	3.0	19-02-2001	70.0
12-02-2003	34.0	06-08-2000	4.0	01-10-2001	95.0
25-02-2003	33.0	15-08-2000	4.0	14-03-2002	58.0
01-03-2003	33.0	12-07-2003	6.0	20-04-2002	44.0
03-03-2003	34.0	13-07-2003	5.0	19-03-2003	100.0

Export options: CSV | Excel | XML    Export options: CSV | Excel | XML    Export options: CSV | Excel | XML



Por Cidade  
 Por Estação  
 Por Localização

País:  Estado:

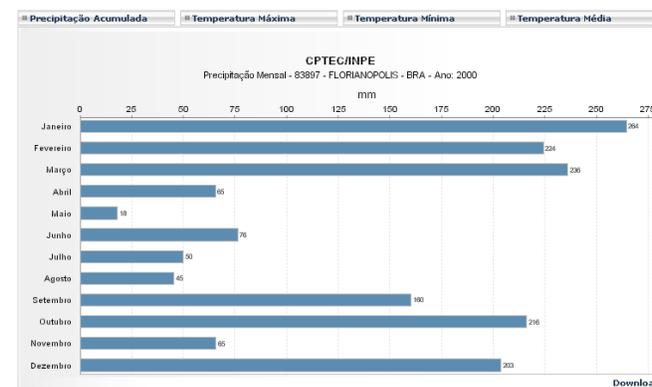
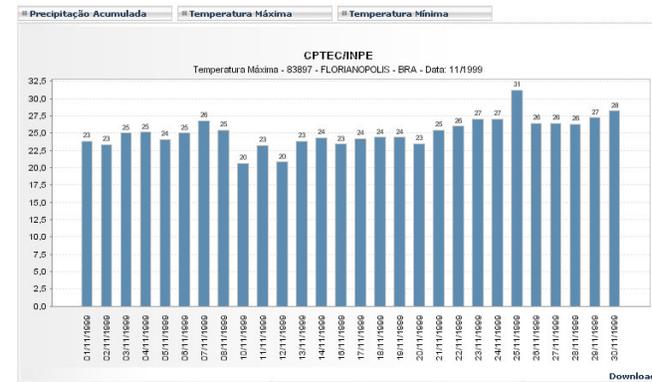
País: BRA Estado: SC  
 Escolha uma cidade:

Estação	País	Latitude	Longitude	Altitude	Entidade	Visualizar
CAMPUS UNIVERSITARIO UFSC-SC	BRA	-27.5833	-48.5167	2.0	OUTRAS	<input type="checkbox"/>
FLORIANOPOLIS-SC	BRA	-27.5833	-48.5667	2.0	INMET	<input type="checkbox"/>
FLORIANOPOLIS 83897-SC	BRA	-27.6006	-48.62	0.0	INMET	<input type="checkbox"/>
FLORIANOPOLIS (AEROPORTO)-SC	BRA	-27.6667	-48.55	5.0	INMET	<input type="checkbox"/>
FLORIANOPOLIS CONVENCIONAL-SC	BRA	-27.34	-48.3	0.0	CLIMERH	<input type="checkbox"/>
LAGOA DO PERI-SC	BRA	-27.7167	-48.5	0.0	ANEEL/DNAEE	<input type="checkbox"/>

Código	Cidade	País	Latitude	Longitude	Altitude
83897	FLORIANOPOLIS - SC	BRA	-27.5833	-48.5667	3943.0

	Precipitação	Temperatura Máxima	Temperatura Mínima
Data	01/07/1961 - 31/01/2006	01/07/1961 - 30/01/2006	01/07/1961 - 31/01/2006
Nº de falhas	8931	9265	9112

Gráficos Diários - Mês:  Ano: 
 Gráficos Mensais - Ano: 
 Extremos



## FINAL REMARKS:

In this work we describe the main characteristics of the system of Visualization and Distribution of Climate Data for the web whose objective is to provide access for the researchers interested in the climatic data of the database of the CPTEC/INPE. This distribution will need previous authorization and will have to respect the property rights. These data are important for research and other applications. Currently these data are stored in the climatic data base of the CPTEC/INPE. This database is of difficult access for users who are go out of the Institution. With the development of this site the external access to these data will be easy and fast.