Geophysical Research Abstracts
Vol. 14, EGU2012-6163, 2012
EGU General Assembly 2012

An observed database to characterize the weather conditions associated with subtropical cyclogenesis over southern-southeastern Brazil

R. Yamamoto (1) and R. Porfirio da Rocha (2)

(1) University of Sao Paulo - USP, IAG, Atmospheric Science, Sao Paulo, Brazil (rodrigo.yamamoto@usp.br), (2) University of Sao Paulo - USP, IAG, Atmospheric Science, Sao Paulo, Brazil (rosmerir@model.iag.usp.br)

A project to study the climatic, dynamic and synoptic aspects of subtropical cyclones that develop in southern-southeastern coast of Brazil is in development. The weather conditions associated with such cyclones is an important question that must be answered in this project. However, for such characterization it is necessary to use the local meteorological observations of wind, wind gust, rainfall, air temperature, etc. The NCEP (National Center for Environmental Prediction) reanalysis have spatial and time resolutions that provide elements to study the synoptic and dynamics of meteorological events (cyclone, anticyclones, troughs, ridges, monsoons circulations, etc) until the production of complex climatology. However, this analysis has coarse horizontal resolution ($\sim$250 Km) that often does not allow the identification of intense meteorological phenomena. A more precise characterization of location and intensity of weather conditions associated with subtropical cyclones would be performed using local observations. Therefore, this work describes the methodology to construct a database of surface weather observations using a relational database management system (RDBMS) MySQL. The data source are SYNOP (Surface Synoptic Observations), METAR (Meteorological Aerodrome Report), NCDC (National Climatic Data Center) and CETESB (Environmental Agency of Sao Paulo State) that are available online through dynamic web page. An iterative algorithm robot was developed to automate the data extraction. Most of the data source are encoded or at non-standard format, hence was developed an algorithm in C++, using the REGEX library, an engine of text pattern search, for decode and handle the exception (erroneous and corrupted data). After the data decoding and formatting it is stored into the MySQL database. The structure of database was divided into categories of tables: a table with the source of data definition, a table with stations information and two sets of tables (for hourly and daily data) for each variable (temperature, pressure, wind, rain, etc). The data in NCDC, SYNOP, METAR, and CETESB are available from 1942, 1999, 1997 and 1997, respectively. The work was extended to a data set that included the entire Latin America using the MySQL that give us a simple and versatile platform allowing the continued growth of the database. The next step is to establish a web interface to make the data available to general public.