

## **Development of Climate Modeling in LAPAN**

Eddy Hermawan

Center for Application of Atmospheric Sciences and Climate of  
National Institute of Aeronautics and Space (LAPAN)  
Jalan Dr. Djundjunan No. 133, Bandung 40173, Indonesia  
Phone : +62-22-6037443; Fax : +62-22-6037443

E-mail : eddy\_lapan@yahoo.com

### **ABSTRACT**

In this present study, we mainly concerned to review the general information of development of climate modeling at LAPAN. Currently, LAPAN has both dynamic and statistical climate models. The dynamic climate model based on global circulation models and limited area models, while, the statistical models based on ARIMA models, canonical and wavelets. Climate models are derived from the CSIRO, Australia. Global circulation models currently owned LAPAN has a horizontal resolution of 500 x 300 km which can be used to perform simulations, predictions and scenarios of climate variability and change mainly due to raising the rate of carbon dioxide (CO<sub>2</sub>) emissions. To use the global circulation model locally with a high degree of accuracy required better spatial resolution. Thus it needs further study using in-situ data for calibration and confirmation of the model performed. Meanwhile, the limited area model has a horizontal resolution of about 30 x 30 km, is still in early stages of assessment, and its application is still limited to the simulation of climate variability in Indonesia. To support the computational modeling of the climate, at this time LAPAN utilize high performance computing systems with multiprocessor machine SGI Power, a number of other high-performance workstations. Parallel programming for multiprocessor was developed for running the global circulation models and regionally also. Some preliminary results of this present study, especially using the statistical model (ARIMA) and the utilization of downscaling technique for better understanding of climate variability study over Indonesia will be presented in this important workshop.

**Keywords:** GCM, LAM, Downscaling, and ARIMA