

3D Weather - 3D Visualization of Weather Datasets Utilizing Vis5D

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Vis5D is an open-source program that creates a system for interactive visualization of large five dimension gridded datasets such as those produced by numerical weather models. Three spatial dimensions, the X, Y and Z coordinates, one time dimension, and another dimension for weather variables such as wind, rain, humidity and temperature. Vis5D is provided by Sourceforge at <http://vis5d.sourceforge.net/> as an open source development program. The datasets used for the high-resolution weather models are downloaded daily from the National Center for Environmental Prediction. Vis5d, combined with the datasets is used to create a visual simulation of the atmospheric weather conditions above and around the state of Hawaii for the purpose of assisting in telescopic operations. By modifying the source code for Vis5D, datasets can be displayed visually in a continuous cycle through daily updates of datasets. Through the modification of the source code, Vis5D will also be able to run in a Windows environment rather than just a Linux environment. The result is a five dimensional model of weather data which will be able to work in a Windows environment and will be continuously updated on a daily basis. Additional work is being completed in order to allow Vis5D to work in the Windows environment with the use of open software development tools such as Mesa3D and MinGw. With the combination of mesa3D, a 3D graphics library program and MinGW, a command line compiler, the Vis5D source code is currently being compiled. By the completion of this project Vis5D will be, functional in both the Linux and Windows environment. The five dimensional weather model will be used by Maui High Performance Computing Center as part of a presentation at several conferences. The weather model will also be used by scientists to help in overall telescopic missions to help predict weather patterns.