Abstract

The CISM Model & Data Explorer, CISM_DX, is:
- a collection of models and data from space science, together with tools for their analysis and visualization
- used by space science researchers, students, and forecasters
- written in open source software OpenDX, Octave, Perl, C, FORTRAN with detailed documentation and many examples
- version controlled, peer reviewed, and unit & regression tested

CISM_DX is a community-developed collection of:
- Codes for side-to-side visualization and analysis of the output of space physics numerical models
- Data sets put into standard file format and form, and provided with code for display in OpenDX, Octave, Matlab, IDL
- Tools -- with examples of their usage -- for space physics research, including coordinate transformation codes, and scripts that transform the data from many providers into a standard format and form

CISM_DX Codes

- Clouds/Clouds2D: tutorial introduction to OpenDX and space science networks
- Clouds/Clouds3D: tutorial introduction to Octave, empirical models, data processing functions
- Clouds/Clouds2DdMd: unit drivers for CISM macros & SPDX modules
- Clouds/Clouds2DfM: collection of CISM empirical & real-time forecast models

CISM_DX Application:

- CISM_DX Data Explorer, CISM
- Codes for running the CISM Forecast Model (FM), with examples of their usage
- Data sets put into standard file format and form, and provided with code for side-to-side visualization and analysis of the output of space physics numerical models
- Tools -- with examples of their usage -- for space physics research, including coordinate transformation codes, and scripts that transform the data from many providers into a standard format and form

CISM_DX Code Sets

- CISM_DX DATA/demos_data: data used in tutorials
- CISM_DX DATA/measurments/data: data from observations
- CISM_DX DATA/model_output/data: data from simulations
- CISM_DX DATA/realtime_data/data: real-time data & predictions

CISM_DX Utilities

- Documentation: PDF manual, online web reference, image collection
- Portability: running, reformating, concatenating files & data
- Engineering: troubleshooting, constructing models & data
- Convenience: OpenDX, Octave, Matlab execution scripts