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LFM-TIEGCM-RCM (LTR)

The LFM is a global MHD model written by John Lyon, Joel Fedder and Clark Mobarry. It is primarily used to better understand Earth's Magnetosphere. The LFM can be coupled with a variety of models to aid in understanding of the physical processes in Geospace, such as:

- Magnetosphere Ionosphere Coupler/Solver ([MIX](#))
 - Thermosphere Ionosphere Electrodynamic General Circulation Model ([TIEGCM](#))
 - Rice Convection Model ([RCM](#))
- The coupled combination of models is called the LTR (LFM-TIEGCM-RCM).

The documentation on this wiki contains limited scientific descriptions of the models. It is intended as a guide to compile & execute the code(s) and documents some of the post-processing tools which have been developed for LTR.



Note

The LTR models and documentation are constantly evolving. This wiki documents the latest release. In some cases, this includes documentation for unreleased/upcoming features. You should sign up to [the LTR-announce mailing list](#) and make sure you're using the [latest release](#). You can find a list of upcoming features via [the LTR roadmap](#).

Scientific Documentation

- The October-November 2004 [Journal of Atmospheric and Solar-Terrestrial Physics](#) special issue: [Towards an Integrated Model of the Space Weather System](#) (i.e. [Lyon 2004](#)).
- The publications and presentations listed at the [BU CISM website](#)
- [LFM Field Aligned Current calculation](#) - Notes on the LFM inner boundary conditions. Gives insight into the calculation of I_{FA} , which is sent to [MIX](#).
- 2010 Merkin, & Lyon [Effects of the low-latitude ionospheric boundary condition on the global magnetosphere](#)
- 2015 Wiltberger et al. LFM-RCM Coupling paper

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