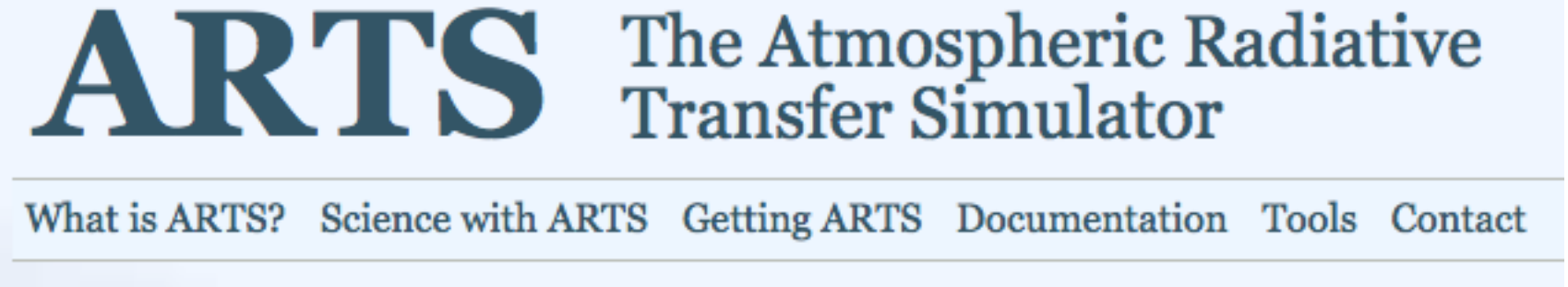
Introduction



Advanced Radiation and Remote Sensing

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Modus operandi

- Mixture of short lecture and a lot of practical exercises, all in the same place and time slot.
- Examination: Short project towards the end of the course.

- This course is experimental and meant to be rugged. Don’t expect any polish. Don’t even expect everything to work properly.

Main tool

- Most (all?) exercises will somehow involve our own radiative transfer model: ARTS
- After the course, you should be able to use ARTS and the tools around it for your own projects!

Roadmap

1. Spectroscopy
   a) Rotational spectra
   b) Vibrational spectra
   c) Line shape
2. Radiative transfer
   a) Brightness temperature and radiative transfer
   b) Jacobians and the opacity rule
3. Thermal radiation transports energy
   a) Outgoing longwave radiation
   b) Heating rates
4. Radiation field inside a cloud
5. Diverse datasets and meteorological sensors
6. Solar shortwave fluxes and heating rates

Increasingly uncertain