DEPARTMENT OF PHYSICS

Aerosol Radiative Forcing

The AeroCom Prescribed Experiment: Towards the Quantification of Host Model Errors

AeroCom Meeting, Oxford

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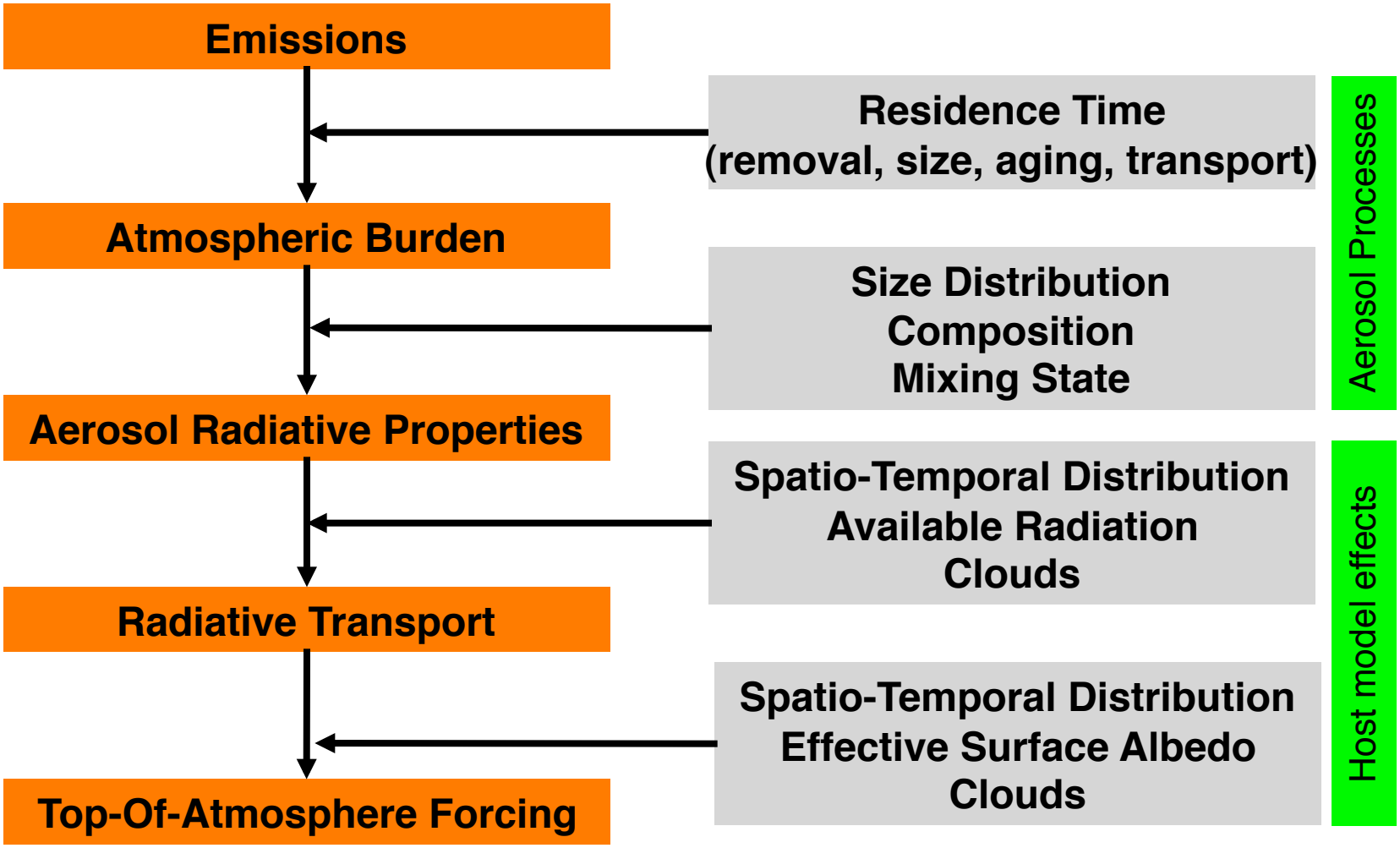
Assessment of aerosol direct radiative forcing

AeroCom: Intercomparison and assessment of the underlying process representations



AeroCom Radiative Forcing

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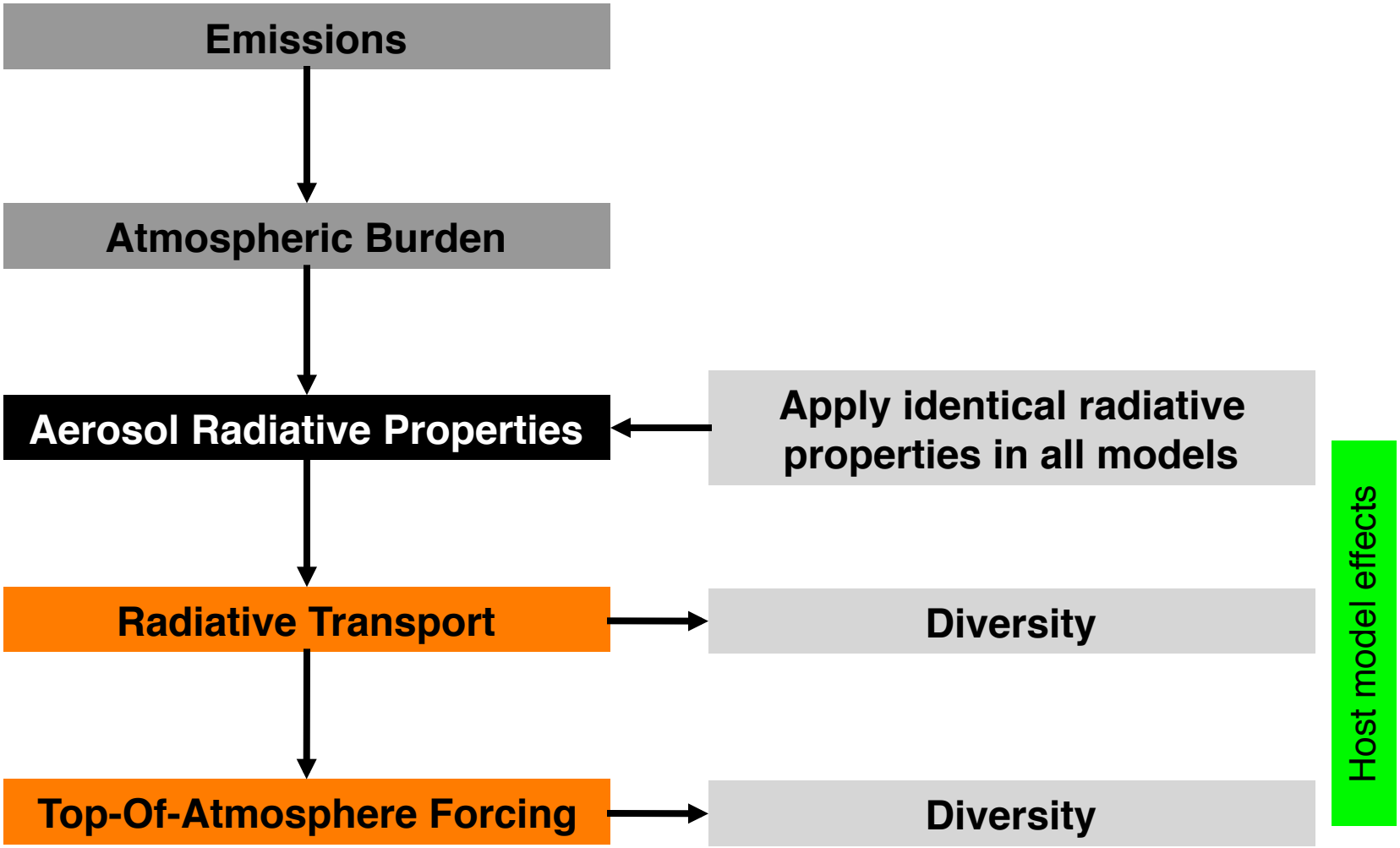
The AeroCom Prescribed Experiment

Facilitate inter-comparability through fixing 3D aerosol radiative properties



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AeroCom Prescribed - Set-up

Prescribe aerosol radiative properties identically in all **"models"**:

- Extinction, Single Scattering Albedo, Asymmetry Factor:

  - 3D distributions

  - 24 SW wavelengths

  - "fool proof" offline mapping tools to model resolution and radiation bands

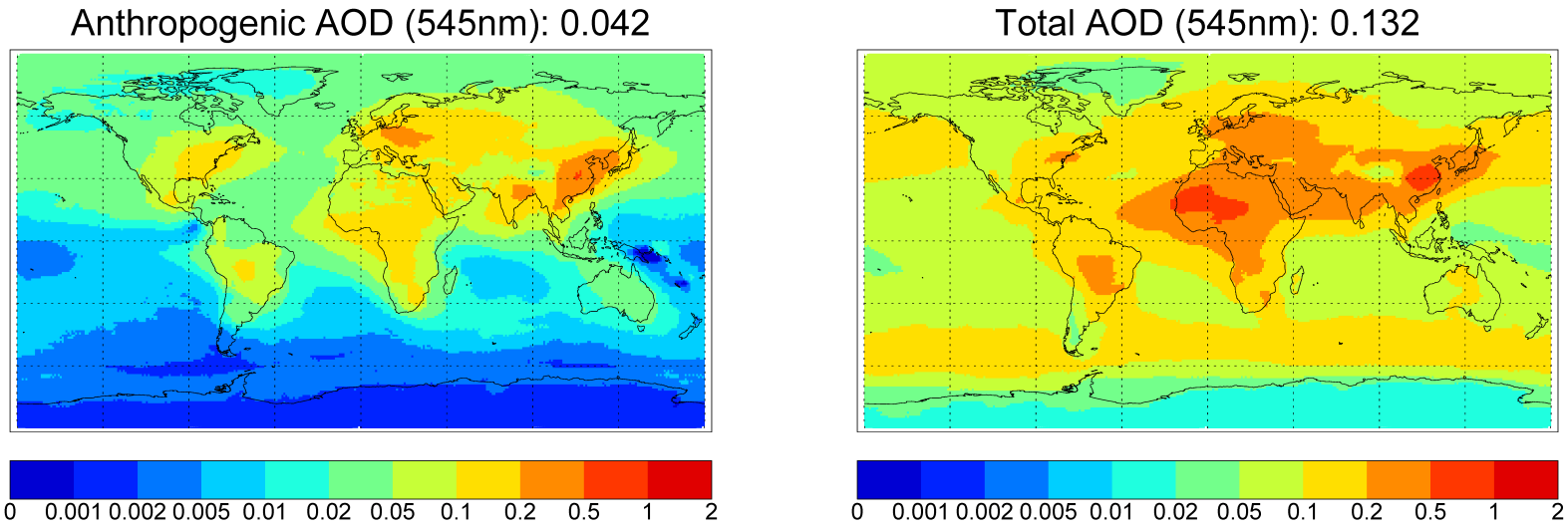
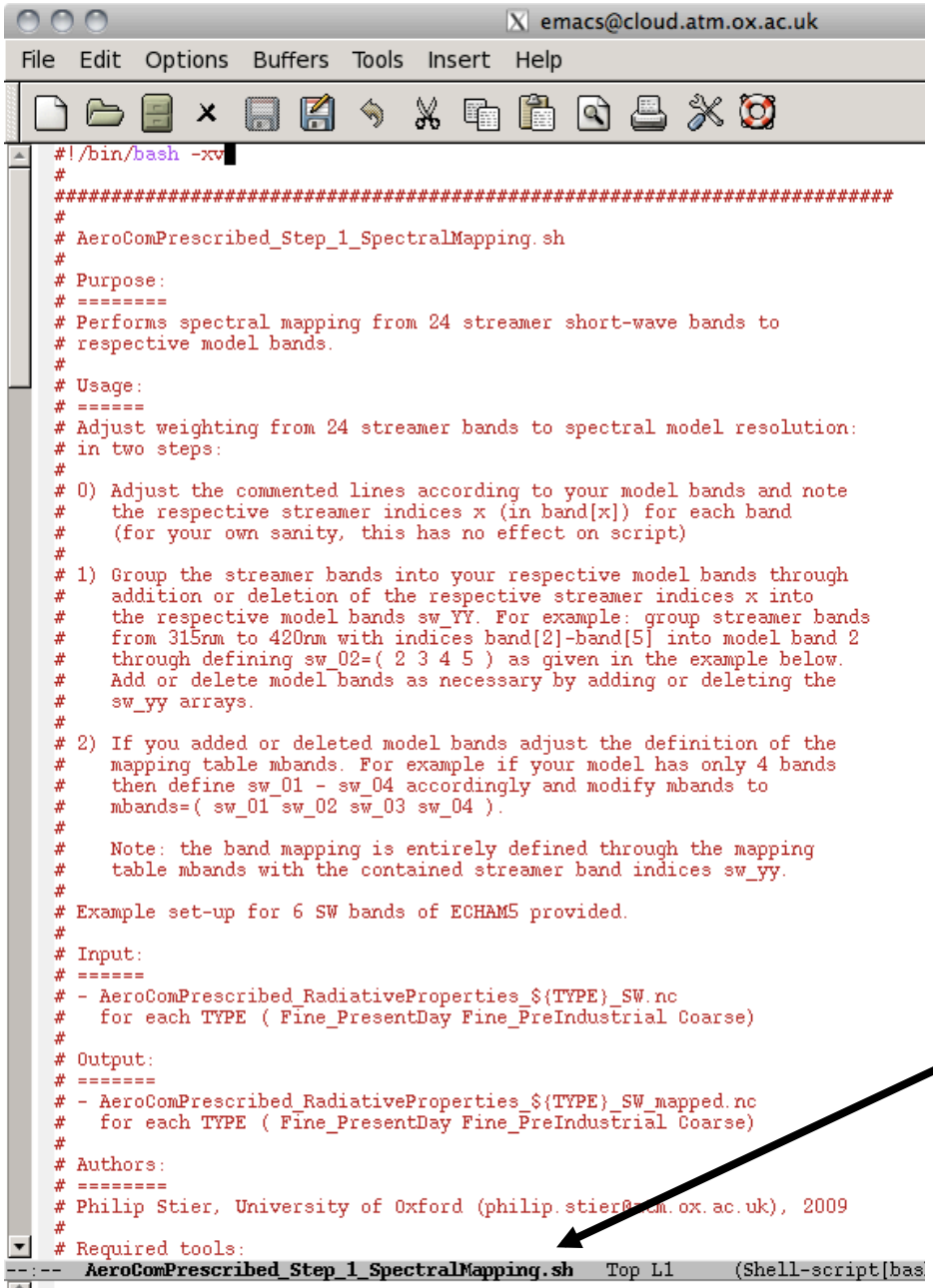


Figure: Annual-mean anthropogenic and total aerosol optical depth at 550 nm derived from AeroCom median model and AERONET.

Input Data Set-up - Step 1 out of 3



Input data on 2D 1x1 degree with 24 spectral bands

Step 1:

Mapping to model specific spectral bands.

Required:

NetCDF operators (nco tools)

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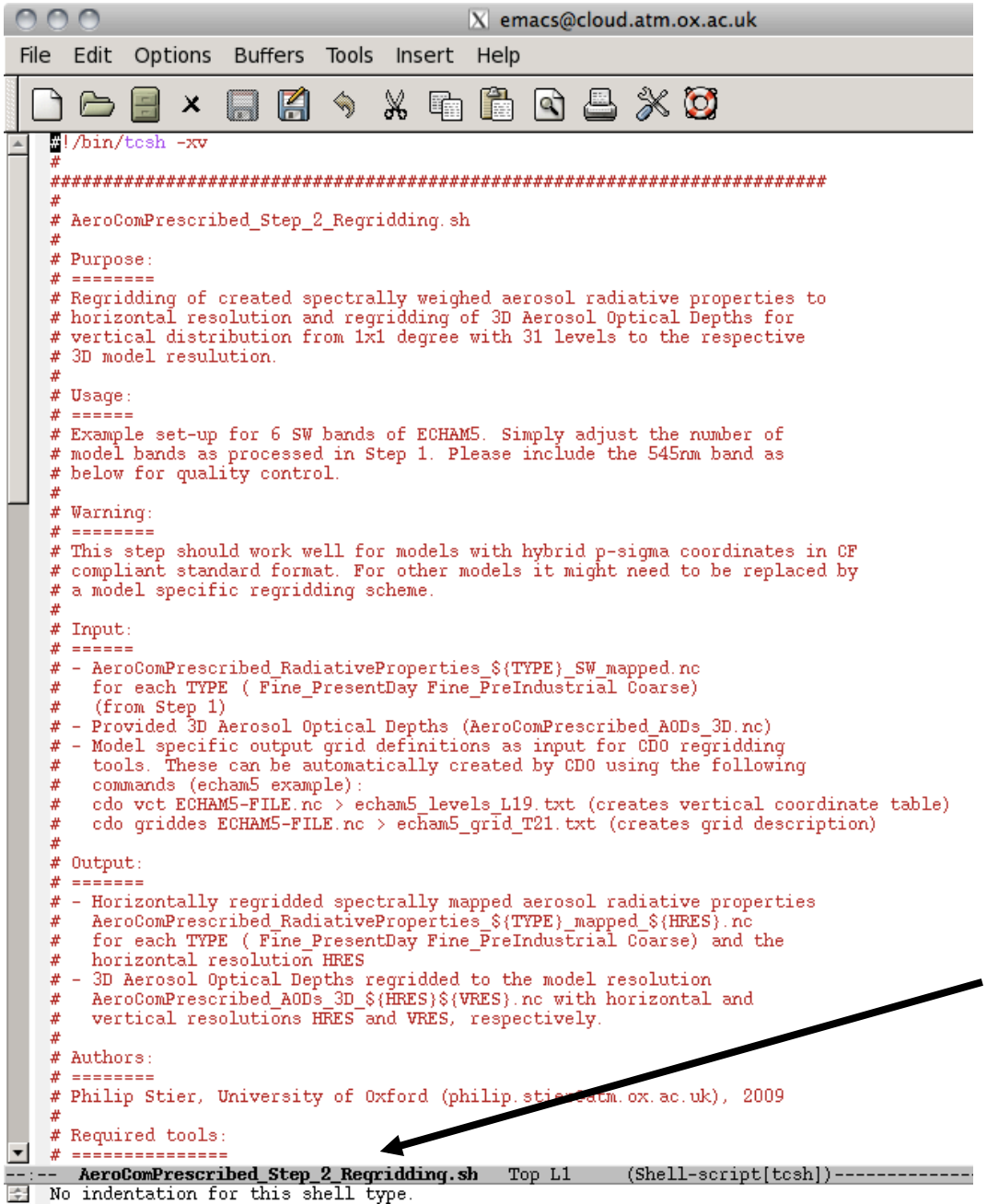
Input Data Set-up – Step 2 out of 3



Input data on 2D 1x1 degree with 24 spectral bands

Step 2:
Regridding to respective spatial model resolution.

Required:

NetCDF operators (nco tools)

Climate Data Operators (CDO)

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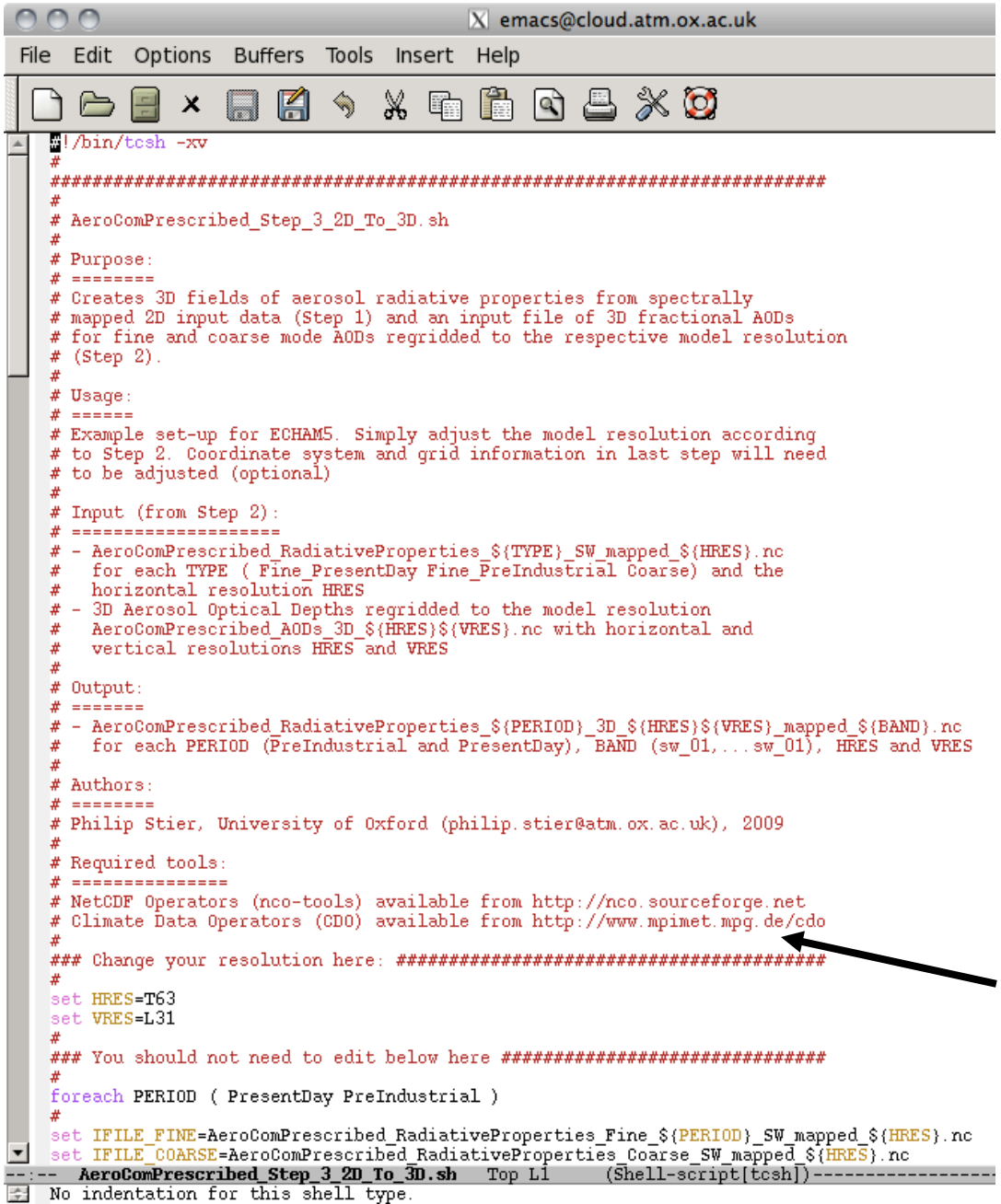
Input Data Set-up – Step 3 out of 3



Input data on 2D 1x1 degree with 24 spectral bands

Step 3:
Creation of 3D files from 2D fields using 3D fractional optical depth input file.

Required:

NetCDF operators (nco tools)

Climate Data Operators (CDO)

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