Readme for SCREAM model class in EMC2

The SCREAM model class is generated to facilitate the consistent treatment for hydrometeor fractions from SCREAM model output. For example, liquid cloud fraction is calculated using the simplified higher-order closure (SHOC) parameterization which accounts for the liquid cloud subcolumn distribution. On the other hand, ice cloud fraction is diagnosed as binary values (i.e., 1 or 0) based on cloud ice number and mass mixing ratios. Such inconsistent treatments make it challenging to reasonably apply subcolumn distribution assumption embedded in EMC2 to SCREAM model data. To address this issue, we introduced a postprocessing approach to use binary values for all hydrometeor fractions from SCREAM. In addition, we also partition snow hydrometeor from simulated cloud ice using diagnosed precipitating ice fraction in SCREAM. Note that the postprocessing only works when one subcolumn is used in the forward calculation of radar and lidar signals.

The demo data and Jupyter notebook to demonstrate the usage of this new model class is at .*/examples/example\_data/scream\_dp\_comble\_anx.2020-03-01.demo.nc* and .*/examples/Test\_EMC2\_demo\_w\_SCREAM.ipynb*.

Key setup in Jupyter notebook to use SCREAM model class:

* N\_sub = 1



