**Information about Level 2 – MSE budget analysis**

At this level, the code estimates vertically integrated MSE budget terms.

Required input data are calculated in **Level 1.** To execute this level, set the parameter

ENSO\_MSE = 1 in ~/diagnostics/ENSO\_MSE/settings.jsonc

file. Users need to complete **Level 1** diagnostics first before running **Level 2**.

The following terms are calculated as vertical integrals:

MSE:

MSE vertical advection:

moisture divergence: .

moisture advection:

temperature advection:

*Note that vertically integrated moisture divergence is also estimated here*.

Note also that surface and radiative fluxes, are already estimated in Level 1. All MSE terms are expressed in W/m-2.

Final output directories:

The El Niño/La Nina composites are under directories:

~/diagnostics/wkdir/MDTF\_$model\_$first\_year\_$last\_year/ENSO\_MSE/MSE/model/netCDF/ELNINO (or LANINA)

Graphical output files reside in : ~/diagnostics/wkdir/MDTF\_$model\_$first\_year\_$last\_year/ENSO\_MSE/model

(e.g. $model = CESM1, $first\_year = 1950, $last\_year = 2005)