TSA –Summary of new version

Preface

The Terra Stand Alone module (TSA), designed for COSMO data, was last modified in 2016 with COSMO version 5.3 (01.06.2016) by Y. Ziv (IMS), using module src_soil_multilay.f90 with SR terra_multlay.

For GRIB I/O the old GRIB1 libDWD is taken.

Concerning the COSMO input data there is no reasonable check of time stamp, grid and available data. Erroneously application could led to incorrect computations.

Tasks

- Migration to new GRIB1/2 software ecCodes (ECMWF)
- Migration to new terra module (including implementation of “block structure”)
- Usage of ICON input data
- Implementation of some basic checks of input data

Current status

- Integration of new terra module in main program terra_TSA.f90 and all necessary data definitions from COSMO version 5.06b_4 (16.10.2019, unified COSMO-ICON physics)
- Implementation of necessary “block structure” by modifying sfc_interface.f90 to tsa_sfc_interface.f90:
    - tsa_sfc_init
    - tsa_sfc_init_copy (to copy to AND from block)
    - tsa_sfc_organize (CALL terra etc)
    - tsa_sfc_finalize
- GRIB I/O with eccodes (old GRIB1 libDWD still possible)
- New subroutines for reading ICON data; modifications for writing ICON fields
- Some basic checks of grid meta data, time stamps and availability of data including some presettings if missing

TO DO

- Review of some physic computations with terra experts
- Including “skin temperature” / other parametrizations
- Complete checks
- Tests for COSMO and ICON input – defining the required data