

TM5-MP - Feature #10231

ERA5 meteo

07/02/2018 10:25 AM - Philippe Le Sager

Status:	In Progress	Start date:	07/02/2018
Priority:	Normal	Due date:	
Assignee:		% Done:	100%
Category:		Estimated time:	0.00 hour
Target version:		Spent time:	0.00 hour
Description			
<p>A development branch (branches/implement-era5) has been created to implement the processing and use of ERA5 met field in TM5. Once tested, the processing should start (to make sure a full ERA5 archive is available when ERA-Interim is discontinued, which is scheduled for end of the year). For this "fast track" processing the following was agreed: all years back to 1990, at 1x1 degree, 137 layers, 3 hourly. The processing includes "convec" and "diffuse" ("sub" on request).</p> <p>We have two sub tasks identified by the SC:</p> <ul style="list-style-type: none">• task 1: Testing / Processing ERA5 meteo at 1x1 / 137layers / 3hourly• task 2: Processing and testing 1 month of ERA5 at 0.5x0.5/1hourly			
Subtasks:			
Feature # 10241: fast track ERA5 pre-processing			Closed
Feature # 10251: High resolution ERA5			Rejected

History

#1 - 03/07/2019 09:58 AM - Arjo Segers

Important changes

- Analysis variables AL (albedo) and SR (surface roughness) are not available anymore, now testing with FAL (forecast albedo) and FSR (forecast surface roughness).
- Accumulated fields (sfc: rain, snow, heat fluxes; ml: convec and diffus) are not stored anymore as "accumulation from start of forecast" but as "accumulation over preceding hour". See [<https://confluence.ecmwf.int/display/CKB/ERA5+data+documentation#ERA5datadocumentation-Meanratesandaccumulations>].
- Current test downloads surface fields hourly and model-level fields 3 hourly. For the model-level 'mean' fields (convec, diffus) this means that only mean values over [02:00,03:00], [05:00,06:00] etc are download, and stored as if they are valid for [00:00,03:00], [03:00,06:00] etc. Maybe we should download and store everything hourly (3 times more data), or download hourly and create 3 hourly averages.

To be decided

- At which resolution do we retrieve the raw data? ERA5 has resolution T639/N320 (~0.28 deg, ~30 km) which is much higher than ERA-Interim (T255/N128, ~0.70 deg, ~80 km) and higher than the needed resolution (1 deg). While testing, retrieve at the same resolution as ERA-Interim.

Comparison between ERA-Interim and ERA5

A first day of ERA5 meteo was extracted and converted for 2015-07-01.

The values have been compared with the corresponding ERA-Interim data to check the units etc. After various bug fixes the new ERA5 processing data seems ok, providing similar maps, timeseries of global means, zonal averages, and frequency histograms.

A tar file with figures and index pages is stored at:

ec:/nl5/TM/notes/compare-ei-ea.tar.gz

#2 - 03/07/2019 10:35 AM - Philippe Le Sager

- Status changed from New to In Progress

We just need a ERA5 source resolution close to (but finer than) the target TM5 resolution. So different for [#10241](#) (your choice of T255 is good, since we target 1x1) and for [#10251](#) (we will need to retrieve at T639).

#3 - 04/01/2019 07:22 PM - Arjo Segers

Comparison between ERA-Interim and ERA5

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