Biogeosciences
Discussions

Interactive comment on "Dynamic INtegrated Gap-filling and partitioning for OzFlux (DINGO)" *by* Jason Beringer et al.

Anonymous Referee #1

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The manuscript is well written and describes a useful system to automate gapfilling. I do not find anything radically new in the approach. Each step in the process is based on well known, and widely used approaches to gapfilling. The novelty, perhaps, is in the automation of the process that offers new ease of use and the potential for widespread application. The test for such a new automated process is the applicability and its wide usability. Many flux sites have such a process for their own site, and none (or few) considered publishing it. As long as the process is specific to only and nothing more than OzFlux, I do not think it makes an interesting scientific paper, and should be published as an OZFlux report or the DINGO software manual. This could be easily remedied, and I propose that the authors will make the effort to generalize DINGO so that it could be applied by any flux site that desires to.

You write in the abstract that "DINGO was developed for Australian data but the frame-

work is applicable to any flux data or regional network". However, it seems to be hard-coded for the Australian data sources and therefore will technically no run for other sites. As there is no novelty to the formulation, I see one of the big advantages in the automation of the work process and particularly in the data retrieval for the gap-filling, which is usually a cumbersome and laborious process. Currently, when gap-filling the forcing data the software only reads Australian met data and Australian high resolution meteorological reanalysis. Is it possible to allow a generic, user provided, table with data from n met stations nearby? Each user can prepare the data from their local met stations but the process of data selection and correlation with the flux-site met obs can be done by DINGO. Can DINGO be made to access the ECMWF reanalysis? It is coarser than the Australian one, but global and would allow users worldwide to have an alternative to local met stations.

For precipitation, which is very poorly generalized from one met station to the other (and particularly the time of precipitation) I suggest that even for the OzFlux data processing there could be a great advantage in using satellite-derived precipitation from TRMM or the new GPM products.

Similarly, the soil moisture model can offer the option to be driven by MODIS LAI and ECMWF as an alternative to the strictly Australian data sources. That should be easy as MODIS is extracted anyhow for the albedo gapfilling.

There is nothing new in incorporating footprint and estimating the uncertainty of the gap-filling method. In fact, it is irresponsible not to do so. These are features that you say will be available in V13, but I see no purpose in publishing an application to a well-known method that is not done yet. However, you say that version 13 is due July 2016. This is a few weeks from now, and before the revision will be due. Can you make this paper about the complete and fully functional version 13?

Other comments: Why are you using different meteorology to drive the soil water model (meteorology from the Bureau of Meteorology's Australian Water Availability Project)

than the station and other met data already processed and gapfilled for the station location, if station data is missing?

The u* filtering section should come before the ANN gap-filling section as u* filtering creates most of the gaps that then need to be filled.

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