Dear CCMI modelers,

*** This is an important announcement that an updated version of CMOR tables has become available on the CCMI website ***

 Some CCMI model groups have already started converting their data into CF-compliant netcdf files for upload to the CCMI data archive at the BADC. We have received some feedback from them on how the CMOR tables could be improved. Thanks to all of you who have contributed feedback and suggestions on improving the tables so far. Further feedback on your experience with the tables is always welcome.

 As for the changes for the second version (actually version 7, since 6 was the first one that was released), the most visible change is the way the tables are managed and distributed. The CMOR tables have been moved under the 'git' version control system so that new versions can be updated in a more transparent manner and changes can be easily tracked. You can retrieve a copy of the tables using either git or downloading a zip file of the tables (described a bit further down).

 The git software is freely distributed and you can download it at:

http://git-scm.com/

 With git installed locally, you can download the repository by issuing the command:

git clone https://github.com/ccmi1-test/ccmi1-cmor-tables.git

which will open a new project under git and create a local copy of the repository. While this will allow you to use all the functionality of git to manage the table repository, as a user you will only really be interested in getting your own copy of the tables. From the directory where you issued the 'git clone' command you will find a new directory and if you look into

/ccmi1-cmor-tables/Tables

you will find the set of CMOR tables you are looking for. Note that because version control is now being used, the filenames of the tables have been shortened to remove any information specifying the version - this should avoid the need to rename the tables before passing them to CMOR.

You will also notice a second directory at:

ccmi1-cmor-tables/csv

These are comma-separated files that were exported from the excel spreadsheet as part of the table generation process. They are included here only for reference and can be ignored.

If you do not want to use git, you can also use a web browser to go to:

https://github.com/ccmi1-test/ccmi1-cmor-tables

On the right-hand side of the page, you will find a button labelled 'Download ZIP'. Clicking on this button, you can save a zip archive of the tables. Then 'unzip' the archive file you downloaded and you will have the tables in a similar directory structure as described above.

The changes to the tables themselves should be minor and hopefully not radically upset the way the tables have been working for the everyone. Here are the notes on what has been changed:

** General changes **

The table names were shortened to be of the form expected by CMOR, in conjunction with moving version control of the tables to Git.

Rolled back the CF version specified in the header of all tables to specify 1.4, because CMOR issues a long list of warnings when the table version does not match what CMOR is expecting.

Removed the specification of cell_measures: area: areacella for all zonal average fields (monthly and daily tables), the daily PSC area fields and the annual 0-D chemical budget fields because they are not on a lat-lon grid for which the areacella field is valid.

Added an alternate time axis - there is now 'time' and 'time1'. The 'time' axis must have bounds set, while the 'time1' axis does not enforce bounds. The addition of 'time1' allows for a simplified writing of instantaneous fields. All fields specified as an average over a particular time period (monthly, annual) have not been changed and must still have bounds supplied and use the 'time' axis. For the daily and hourly fields the time axis is set to 'time1' for which having bounds set is not enforced. In the absence of bounds on 'time1' the fields are assumed instantaneous. If the

fields being submitted are averages over a particular time period, for example 24-hour averages being provided for the requested daily fields, bounds should be set nonetheless. Note that the daily 3-D fields specifically request instantaneous fields and this has been enforced by settings 'cell_methods: time: point' along with the use of the 'time1' axis. The one exception are fields requesting daily maximum or minimum values (e.g. tasmin) which must have bounds set for the time axis and still use the 'time' axis.

Addition of cell_methods: area: sum to fields that represent integrals over area, such as the PSC area fields and the annual global chemical budget terms.

** Specific changes: **

For the vgd variable, vegetation_area_fraction, in the monthly table, the vegetation axis was moved to be before the time axis in the dimensions list since it is not a scalar dimension.

The sfta variable, surface_temperature, in the daily table was renamed ts to harmonize with a similar variable in CMIP5. The comment for this variable was changed as well.

Please use the updated versions from now on and let us know ASAP if you encounter any issues to help improve the process!

Thanks for your continuous efforts,

Michaela, David (Plummer) & Jean-Francois