

## netCDF Oxygen standard names and description

Original Posting on November 24, 2011

### Originated from: Steve Poulos (SOEST, UH) on Wed, 24 Nov 2010

Hello all - Hope your Thanksgiving will be great!

RVTEC decided way back to utilize netCDF as the standard of exchange for data.  
(Dale even still has the html ref up online on how it works graphically. )

I am assuming there is standard netCDF nomenclature for oxygen but have not been able to come up with something when doing a recent search. Does R2R deal with this?

Typical seaglider oxygen units we graph and look at are in units of ml / liter for the Aanderaa Optode 4330F and the SBE 43F model. But I realize many of the ships probably display the units on the CTD console as 'umol/kg'.

What would be the netCDF standard\_name: ? i.e. like "saturated\_oxygen" or "dissolved\_oxygen" ? and a description? i.e. " dissolved oxygen saturation value" ?

Anyone have an oxygen reference they have been using in netCDF or are we generally still not converting our CTD data into a netCDF format?

thanks,  
Steve Poulos  
Univ of Hawaii

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### Reply from Frank Delahoyde (Scripps Institution of Oceanography) on Thu, 25 Nov 2010

We (SIO Shipboard Technical Support and Oceanographic Data Facility) use netcdf internally and distribute CTD data in a netcdf format, but it isn't standardized and most of the community is perfectly content with some sort of flat ascii data distribution (<http://cchdo.ucsd.edu> for details).

Dissolved oxygen is the recognized description for data derived from CTD MPOD oxygen sensors like the SBE43 in spite of the fact that they measure oxygen partial-pressure. Micro-moles/kg are acceptable units if you are using the measurement temperature to effect the conversion, otherwise ml/l is a better choice. We use ml/l internally so that we can calibrate the sensor to check samples. We convert to

umol/kg for reporting purposes.

Frank

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### **Reply from Dale Chayes (LDEO) on Thu, 25 Nov 2010**

On Nov 24, 2010, at 22:52 , poulos wrote:

- > RVTEC decided way back to utilize netCDF as the standard of exchange for data.
- > (Dale even still has the html ref up online on how it works graphically. )

The link is (still) at:<http://www.ldeo.columbia.edu/~dale/dataflow/> and dates to 1999. Steve refers to the second figure, scroll down a bit i noted (at the time) that:

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With regard to the RVTEC effort, it appears that we are agreed that

- the exchange file will be in NetCDF format,
- the exchange file will contain appropriate metadata
- one (or more) extraction tool(s) will be created
- the initial effort will be based on a widely used physical/chemical oceanographic data (IMET or TSG)

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In retrospect, perhaps we were ahead of the curve and I wonder if some of this has been overcome by events.

-Dale

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### **Reply from Doug White (UDel) on Thu, 25 Nov 2010**

I forwarded this thread to a couple of the PI's that I know work with DO for their feedback as this is an interesting question, here is Dr. Luther's 2 cents...

Doug

From: Luther III, George W.  
Sent: Thursday, November 25, 2010 10:20 AM  
To: White, Douglas A.; Oliver, Matthew John

Subject: RE: [RVTEC] netCDF Oxygen standard names and description

Doug,

It varies with discipline and the person's age too. % saturation is not a real unit though as the actual dissolved oxygen concentration for 100 % saturation varies with temperature and salinity.

I like umole/kg because you can calculate molar quantities with other reactants from it directly. Jon Sharp seems to like mg/L or mL/L as that was how he was taught.

CTDs can display any of the units, and normally give % saturation also.

George

George W. Luther, III

Maxwell P. and Mildred H. Harrington Professor of Marine Studies

College of Earth, Ocean and Environment

University of Delaware

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### **Reply from Bruce Huber (LDEO) on Thu, 25 Nov 2010**

NOAA has adopted naming conventions for climate and forecast data, following the CF Metadata convention:

<http://cf-pcmdi.llnl.gov/>

All of our NOAA-sponsored research will require us to report our data using this convention (netcdf based):

<http://www.oceansites.org/data/index.html>

Perhaps these two links can be of use to this discussion

Bruce

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