



Science and
Technology
Facilities Council

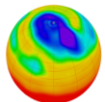
Natural
Environment
Research Council

CF Standard Names

ESIP Summer Meeting

July 2020

Alison Pamment



**Centre for Environmental
Data Analysis**

SCIENCE AND TECHNOLOGY FACILITIES COUNCIL
NATURAL ENVIRONMENT RESEARCH COUNCIL



**National Centre for
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is-enes
INFRASTRUCTURE FOR THE EUROPEAN NETWORK
FOR EARTH SYSTEM MODELLING





**What is a standard
name?**

What is a standard name?

A standard name identifies the geophysical quantity in a data variable, e.g. air_temperature.

Attach the standard name to a data variable using the CF **standard_name** attribute:

```
float ps1(lat,lon) ;  
    ps1:units = "hPa" ;  
    ps1:standard_name = "pressure_at_mean_sea_level" ;
```

Standard names facilitate data exchange by providing unambiguous identification of variables.

CF standard name table

- Most recent (Version 73, June 2020) contains 4422 names
- Approximately 40 names under active discussion

Standard Name	Canonical Units
air_temperature_anomaly “Anomaly” means difference from climatology. Air temperature is the bulk temperature of the air, not the surface (skin) temperature.	K
surface_upward_latent_heat_flux The surface latent heat flux is the exchange of heat between the surface and the air on account of evaporation (including sublimation). In accordance with common usage in geophysical disciplines, “flux” implies per unit area, called “flux density” in physics.	W m-2

CF standard names: basic rules

- Any variable labelled with the **standard_name** attribute **must** use a value from the published standard name table
- Standard names consist of letters, digits and underscores, no whitespace.
- English language with US spellings
- Case sensitive
 - Mixed case used for chemical element symbols, e.g.
integral_wrt_time_of_radioactivity_concentration_of_112Ag_in_air
- (Almost) all standard names have an accompanying description
- Names are never removed once they have been added
 - Name can be modified using an 'alias'

Canonical units

- Canonical units are agreed at same time as standard name – they go hand in hand, e.g.
 - mass_concentration \rightarrow kg m⁻³
 - mole_concentration \rightarrow mol m⁻³
- String valued
- Must be supported by Unidata UDUNITS2 package
- Conversion between recognized units – temperatures in degrees Celsius are OK!

What **isn't** described in the standard name

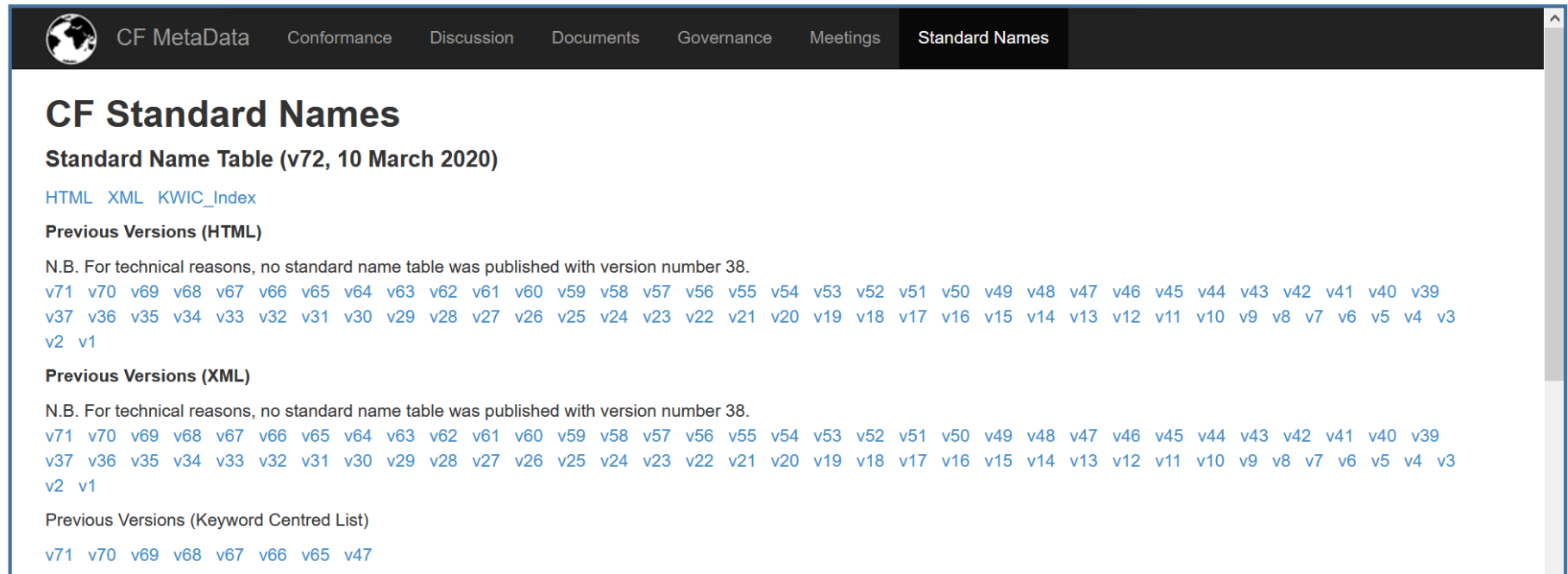
- Vertical level and geolocation, e.g. 2m air temperature
 - Use coordinate variables or region labels
- Statistical processing, e.g. mean, maximum, etc.
 - Use cell_methods attribute
- Portions of grid cell, e.g. mean surface albedo over snow area
 - Use cell_methods attribute plus area_type coordinate variable
- Units
 - Use units attribute



Browsing published names

All versions of standard name table are available on CF website:

<http://cfconventions.org/standard-names.html>



The screenshot shows the 'Standard Names' section of the CF website. It features a navigation bar with links to CF MetaData, Conformance, Discussion, Documents, Governance, Meetings, and Standard Names. The main content area is titled 'CF Standard Names' and 'Standard Name Table (v72, 10 March 2020)'. It includes links for HTML, XML, and KWIC_Index. Under 'Previous Versions (HTML)', it states that no standard name table was published with version number 38, followed by a list of version links from v71 to v3. Under 'Previous Versions (XML)', it also states that no standard name table was published with version number 38, followed by a list of version links from v71 to v3. At the bottom, there is a section for 'Previous Versions (Keyword Centred List)' with links from v71 to v47.

CF MetaData Conformance Discussion Documents Governance Meetings **Standard Names**

CF Standard Names

Standard Name Table (v72, 10 March 2020)

[HTML](#) [XML](#) [KWIC_Index](#)

Previous Versions (HTML)

N.B. For technical reasons, no standard name table was published with version number 38.

[v71](#) [v70](#) [v69](#) [v68](#) [v67](#) [v66](#) [v65](#) [v64](#) [v63](#) [v62](#) [v61](#) [v60](#) [v59](#) [v58](#) [v57](#) [v56](#) [v55](#) [v54](#) [v53](#) [v52](#) [v51](#) [v50](#) [v49](#) [v48](#) [v47](#) [v46](#) [v45](#) [v44](#) [v43](#) [v42](#) [v41](#) [v40](#) [v39](#)
[v37](#) [v36](#) [v35](#) [v34](#) [v33](#) [v32](#) [v31](#) [v30](#) [v29](#) [v28](#) [v27](#) [v26](#) [v25](#) [v24](#) [v23](#) [v22](#) [v21](#) [v20](#) [v19](#) [v18](#) [v17](#) [v16](#) [v15](#) [v14](#) [v13](#) [v12](#) [v11](#) [v10](#) [v9](#) [v8](#) [v7](#) [v6](#) [v5](#) [v4](#) [v3](#)
[v2](#) [v1](#)

Previous Versions (XML)

N.B. For technical reasons, no standard name table was published with version number 38.

[v71](#) [v70](#) [v69](#) [v68](#) [v67](#) [v66](#) [v65](#) [v64](#) [v63](#) [v62](#) [v61](#) [v60](#) [v59](#) [v58](#) [v57](#) [v56](#) [v55](#) [v54](#) [v53](#) [v52](#) [v51](#) [v50](#) [v49](#) [v48](#) [v47](#) [v46](#) [v45](#) [v44](#) [v43](#) [v42](#) [v41](#) [v40](#) [v39](#)
[v37](#) [v36](#) [v35](#) [v34](#) [v33](#) [v32](#) [v31](#) [v30](#) [v29](#) [v28](#) [v27](#) [v26](#) [v25](#) [v24](#) [v23](#) [v22](#) [v21](#) [v20](#) [v19](#) [v18](#) [v17](#) [v16](#) [v15](#) [v14](#) [v13](#) [v12](#) [v11](#) [v10](#) [v9](#) [v8](#) [v7](#) [v6](#) [v5](#) [v4](#) [v3](#)
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Previous Versions (Keyword Centred List)

[v71](#) [v70](#) [v69](#) [v68](#) [v67](#) [v66](#) [v65](#) [v47](#)



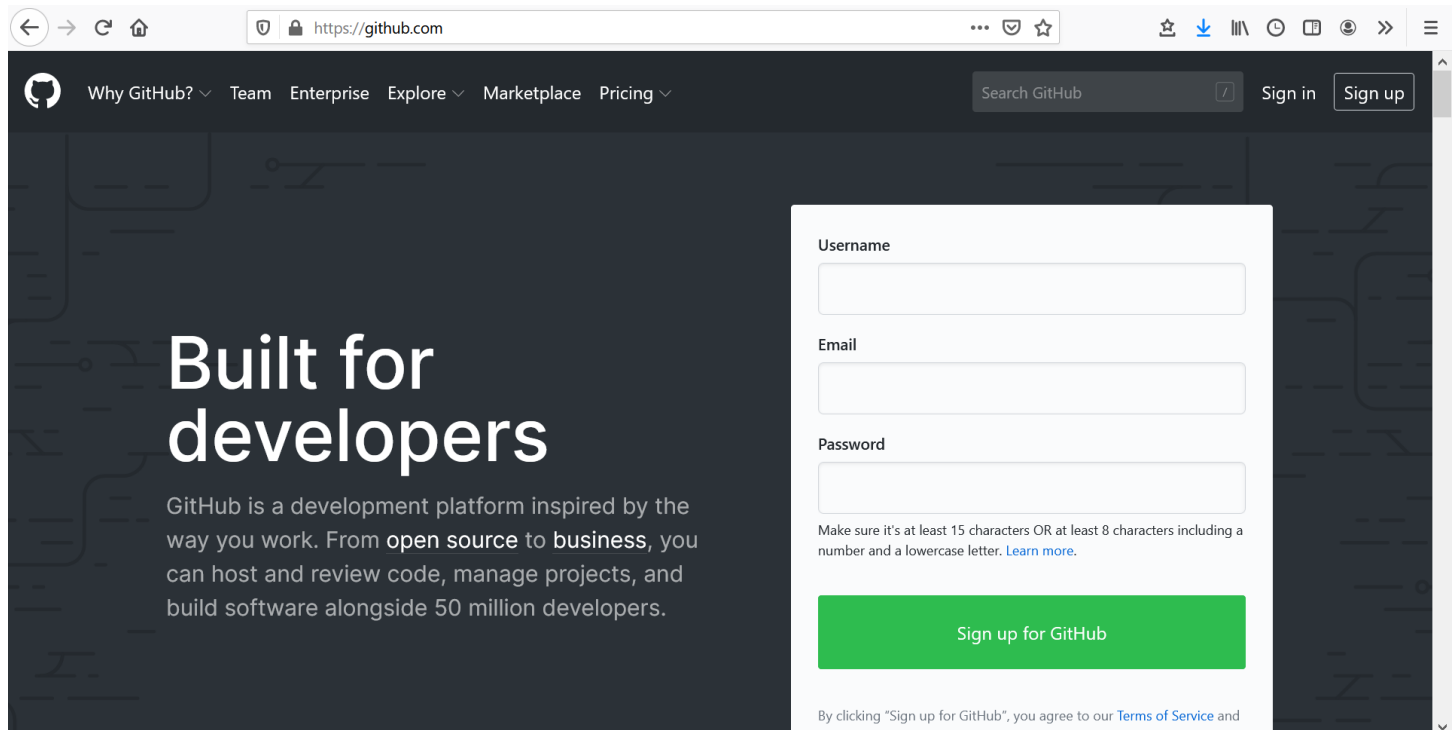
Standard names process

How do I ask for a new standard name?

STEP 1

Sign up for an account on GitHub

<https://github.com/>



The screenshot shows the GitHub homepage in a web browser. The browser's address bar displays <https://github.com/>. The page features a dark header with navigation links: "Why GitHub?", "Team", "Enterprise", "Explore", "Marketplace", and "Pricing". A search bar and "Sign in" / "Sign up" buttons are also present. The main content area has a dark background with the text "Built for developers" and a description of GitHub as a development platform. A white sign-up form is overlaid on the right side of the page, containing fields for "Username", "Email", and "Password". Below the password field, there is a note about password requirements and a link to "Learn more". A green "Sign up for GitHub" button is at the bottom of the form. At the very bottom of the page, a small line of text states: "By clicking 'Sign up for GitHub', you agree to our [Terms of Service](#) and [Privacy Policy](#)."

Username

Email

Password

Make sure it's at least 15 characters OR at least 8 characters including a number and a lowercase letter. [Learn more.](#)

Sign up for GitHub

By clicking "Sign up for GitHub", you agree to our [Terms of Service](#) and [Privacy Policy](#).

How do I ask for a new standard name?

STEP 2

Navigate to the CF “discuss” repository (repo)

<https://github.com/cf-convention/discuss>

cf-convention / discuss

Unwatch 56 Star 13 Fork 0

<> Code Issues 29 Pull requests 0 Actions Projects 0 Wiki Security 0 Insights Settings

Filters is:issue is:open Labels 11 Milestones 0 New issue

<input type="checkbox"/>	29 Open	25 Closed	Author	Label	Projects	Milestones	Assignee	Sort
<input type="checkbox"/>		Question : time series that refer to a geographical region (featureType?)	#54 opened 6 days ago by TomLav					5
<input type="checkbox"/>		The 2020 CF meeting: Online, 9-11 June: Registration & Agenda	#53 opened 8 days ago by davidhassell	announcement				5
<input type="checkbox"/>		Calendar choice for long time period data set	#52 opened 17 days ago by beusena					7
<input type="checkbox"/>		Publish CF Standard Names as an Ontology	#51 opened 21 days ago by alexrobin					39
<input type="checkbox"/>		Standard names: downward_heat_flux_at_ground_level_in_snow -- clarification	#50 opened 22 days ago by martinjuckes	standard name				
<input type="checkbox"/>		Clarify the projection coordinates of the geostationary projection (CF vs PROJ)						4

How do I ask for a new standard name?

STEP 3

Open a new issue

cf-convention / discuss

Unwatch 56 Star 13 Fork 0

Code Issues 29 Pull requests 0 Actions Projects 0 Wiki Security 0 Insights Settings

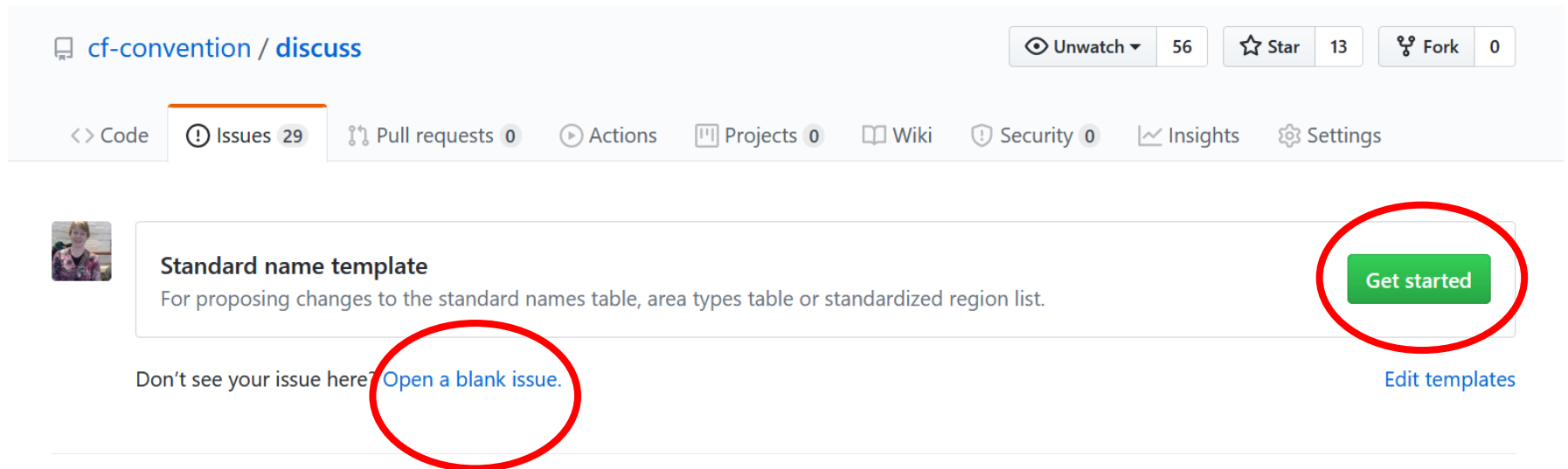
Filters is:issue is:open Labels 11 Milestones 0 **New issue**

<input type="checkbox"/>	29 Open ✓ 25 Closed	Author	Label	Projects	Milestones	Assignee	Sort
<input type="checkbox"/>	Question : time series that refer to a geographical region (featureType?) #54 opened 6 days ago by TomLav						5
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How do I ask for a new standard name?

STEP 4

Select the standard name template



cf-convention / discuss

Unwatch 56 Star 13 Fork 0

<> Code Issues 29 Pull requests 0 Actions Projects 0 Wiki Security 0 Insights Settings

Standard name template
For proposing changes to the standard names table, area types table or standardized region list.

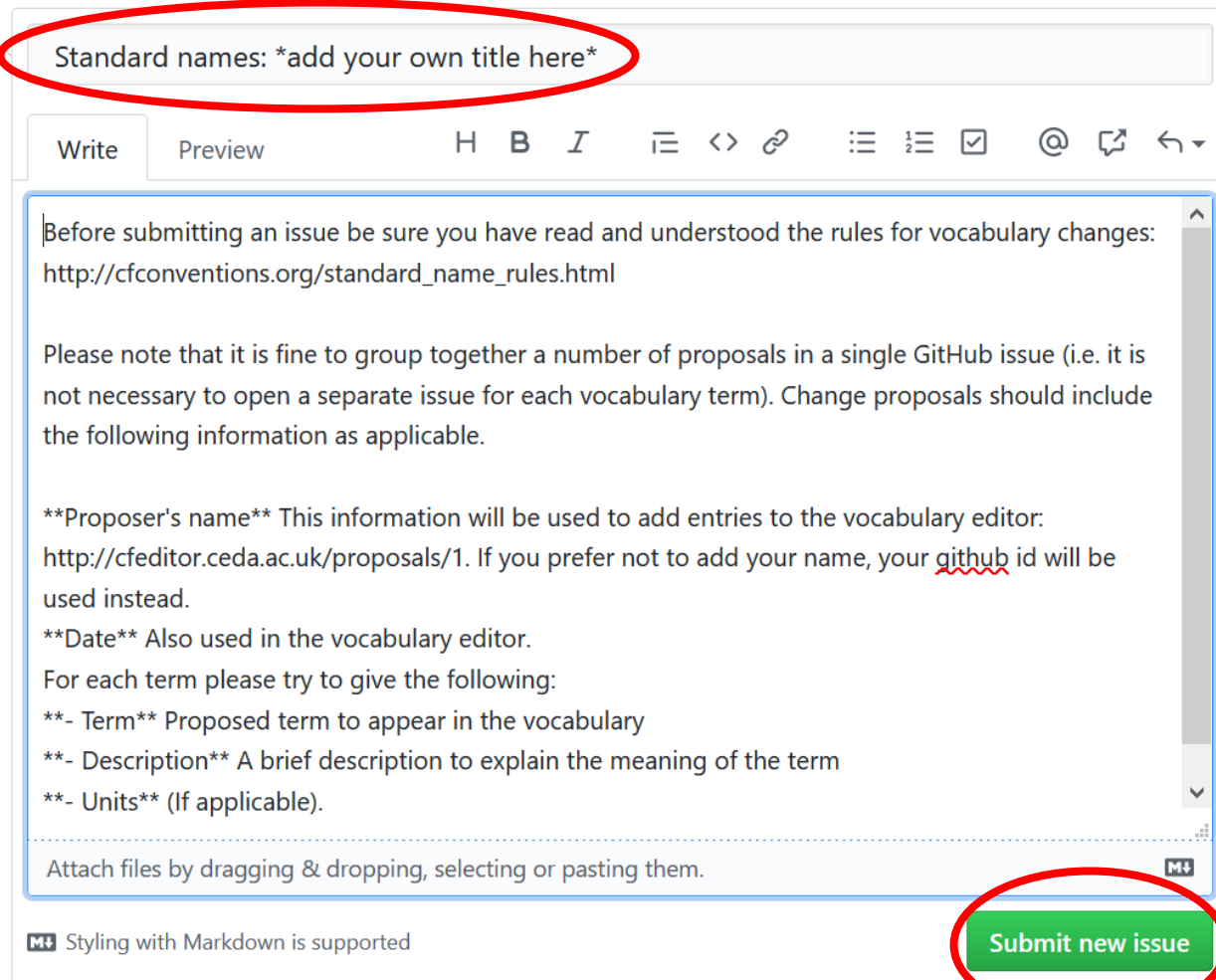
Get started

Don't see your issue here? [Open a blank issue.](#) [Edit templates](#)








How do I ask for a new standard name?

STEP 5

Use the template to write your proposal



Standard names: *add your own title here*

Write Preview H B I      @  

Before submitting an issue be sure you have read and understood the rules for vocabulary changes:
http://cfconventions.org/standard_name_rules.html


Please note that it is fine to group together a number of proposals in a single GitHub issue (i.e. it is not necessary to open a separate issue for each vocabulary term). Change proposals should include the following information as applicable.


Proposer's name This information will be used to add entries to the vocabulary editor:
<http://cfeditor.ceda.ac.uk/proposals/1>. If you prefer not to add your name, your github id will be used instead.

Date Also used in the vocabulary editor.

For each term please try to give the following:

- Term** Proposed term to appear in the vocabulary
- Description** A brief description to explain the meaning of the term
- Units** (If applicable).

Attach files by dragging & dropping, selecting or pasting them. 

 Styling with Markdown is supported

Submit new issue

CF standard name rules

- Any member of the community may comment on proposals
- Aim of the discussion is to achieve consensus (we now have two moderators!)
- Rules are laid out at http://cfconventions.org/standard_name_rules.html
- Provision for “fast tracking” new names that are very similar to existing terms, subject to checking
- CF standard names committee can be asked to vote if consensus cannot be achieved

Where next for CF standard names?

- The standard name table continues to grow – names for modelled and observed quantities continue to be added
- A few standard names are used as pointers to external vocabularies:
 - Land cover
 - Biological taxa

This provides a mechanism for benefitting from the work of other communities and may be needed increasingly in the future

- Publish standard names as an ontology within CF namespace

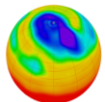


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Thank you!

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