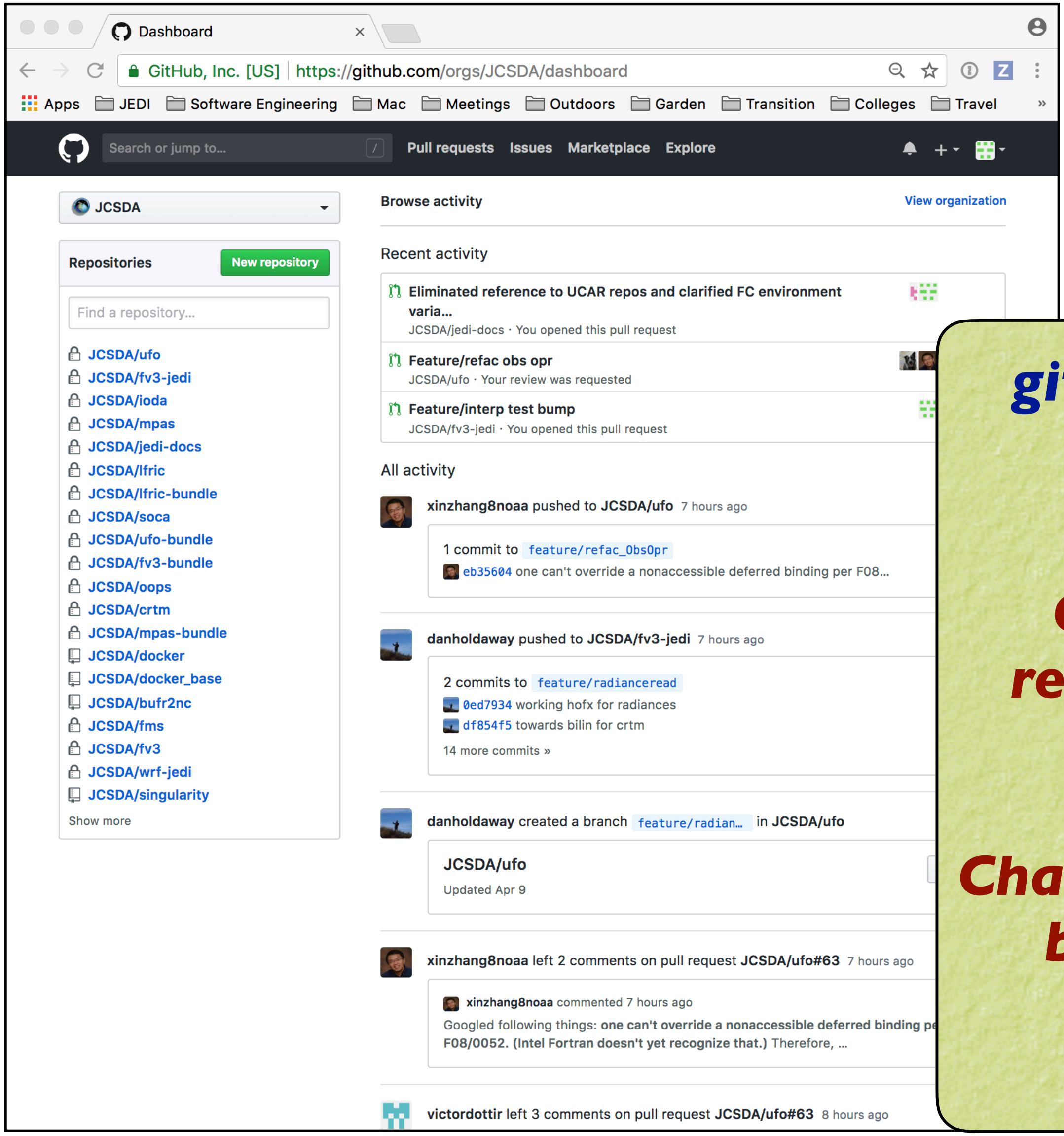
# Collaborative Tools 2

# Collaborative Tools 2

- ***Agile Project Management and Collaborative Workflow***
  - ***git/GitHub***
  - ***git-flow***
  - ***ZenHub***

- ***Documentation***
  - ***Doxygen***
  - ***JCSDA Wiki***

# git/GitHub



Dashboard

GitHub, Inc. [US] | https://github.com/orgs/JCSDA/dashboard

Apps | JEDI | Software Engineering | Mac | Meetings | Outdoors | Garden | Transition | Colleges | Travel

Search or jump to... | Pull requests | Issues | Marketplace | Explore

JCSDA

Repositories | New repository

Find a repository...

- JCSDA/ufo
- JCSDA/fv3-jedi
- JCSDA/ioda
- JCSDA/mpas
- JCSDA/jedi-docs
- JCSDA/lfric
- JCSDA/lfric-bundle
- JCSDA/soca
- JCSDA/ufo-bundle
- JCSDA/fv3-bundle
- JCSDA/oops
- JCSDA/crtm
- JCSDA/mpas-bundle
- JCSDA/docker
- JCSDA/docker_base
- JCSDA/bufr2nc
- JCSDA/fms
- JCSDA/fv3
- JCSDA/wrf-jedi
- JCSDA/singularity

Show more

Browse activity | View organization

Recent activity

Eliminated reference to UCAR repos and clarified FC environment varia...
JCSDA/jedi-docs · You opened this pull request

Feature/refac obs opr
JCSDA/ufo · Your review was requested

Feature/interp test bump
JCSDA/fv3-jedi · You opened this pull request

All activity

xinzhang8noaa pushed to JCSDA/ufo 7 hours ago

1 commit to `feature/refac_ObsOpr`
`eb35604` one can't override a nonaccessible deferred binding per F08...

danholdaway pushed to JCSDA/fv3-jedi 7 hours ago

2 commits to `feature/radianceread`
`0ed7934` working hofx for radiances
`df854f5` towards bilin for crtm
14 more commits »

danholdaway created a branch `feature/radian...` in JCSDA/ufo

JCSDA/ufo
Updated Apr 9

xinzhang8noaa left 2 comments on pull request JCSDA/ufo#63 7 hours ago

xinzhang8noaa commented 7 hours ago
Googled following things: **one can't override a nonaccessible deferred binding pe**
**F08/0052. (Intel Fortran doesn't yet recognize that.)** Therefore, ...

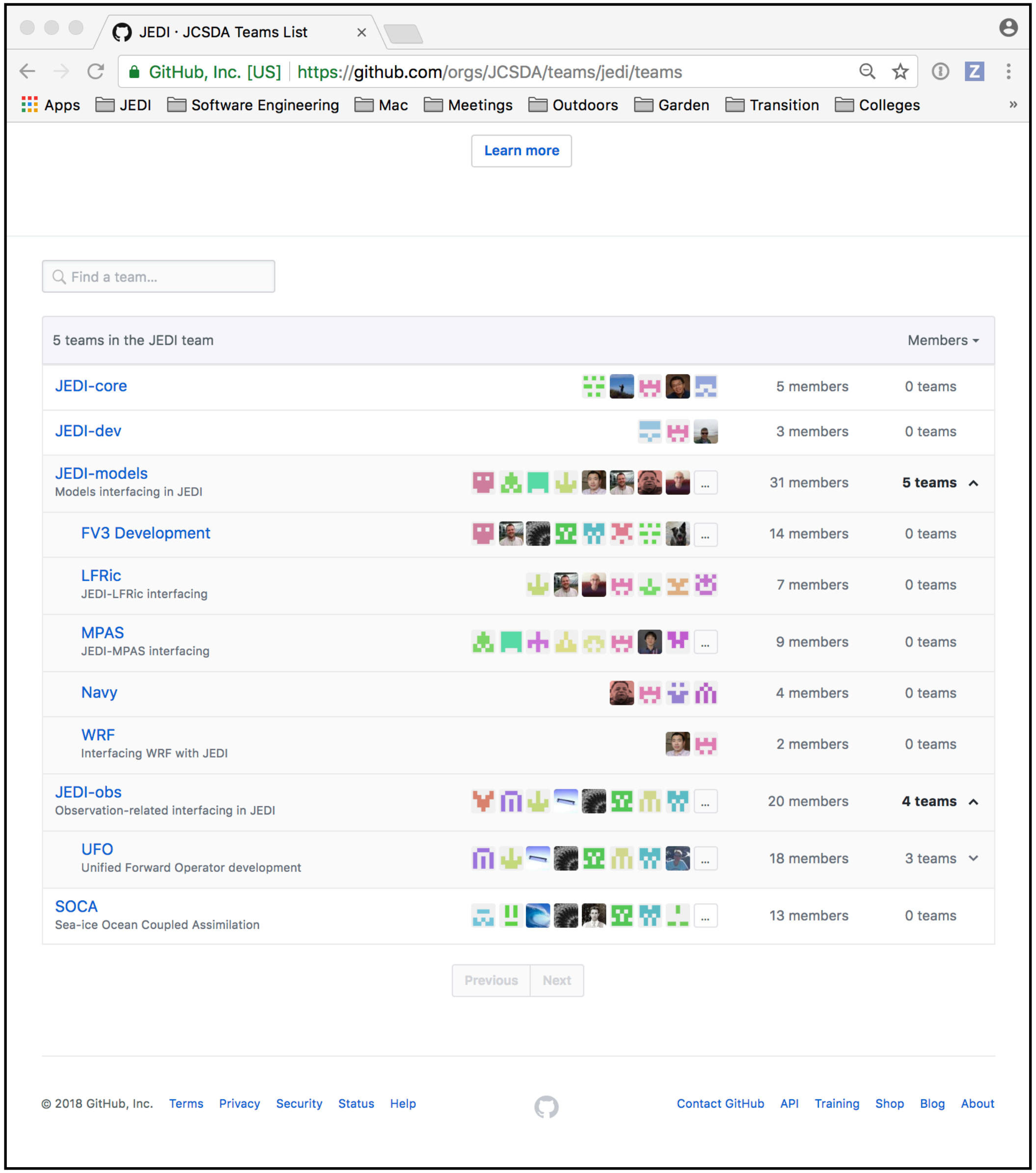
victordottir left 3 comments on pull request JCSDA/ufo#63 8 hours ago

***git - command line tool (version control)***

***GitHub - Web-based repository management (branches, releases)***

***Changes to develop, master branches handled via pull requests***

# GitHub Teams



https://github.com/orgs/JCSDA/teams/jedi/teams

5 teams in the JEDI team

| | | |
|---|---|---|
| JEDI-core | 5 members | 0 teams |
| JEDI-dev | 3 members | 0 teams |
| JEDI-models<br>Models interfacing in JEDI | 31 members | 5 teams |
| FV3 Development | 14 members | 0 teams |
| LFRic<br>JEDI-LFRic interfacing | 7 members | 0 teams |
| MPAS<br>JEDI-MPAS interfacing | 9 members | 0 teams |
| Navy | 4 members | 0 teams |
| WRF<br>Interfacing WRF with JEDI | 2 members | 0 teams |
| JEDI-obs<br>Observation-related interfacing in JEDI | 20 members | 4 teams |
| UFO<br>Unified Forward Operator development | 18 members | 3 teams |
| SOCA<br>Sea-ice Ocean Coupled Assimilation | 13 members | 0 teams |

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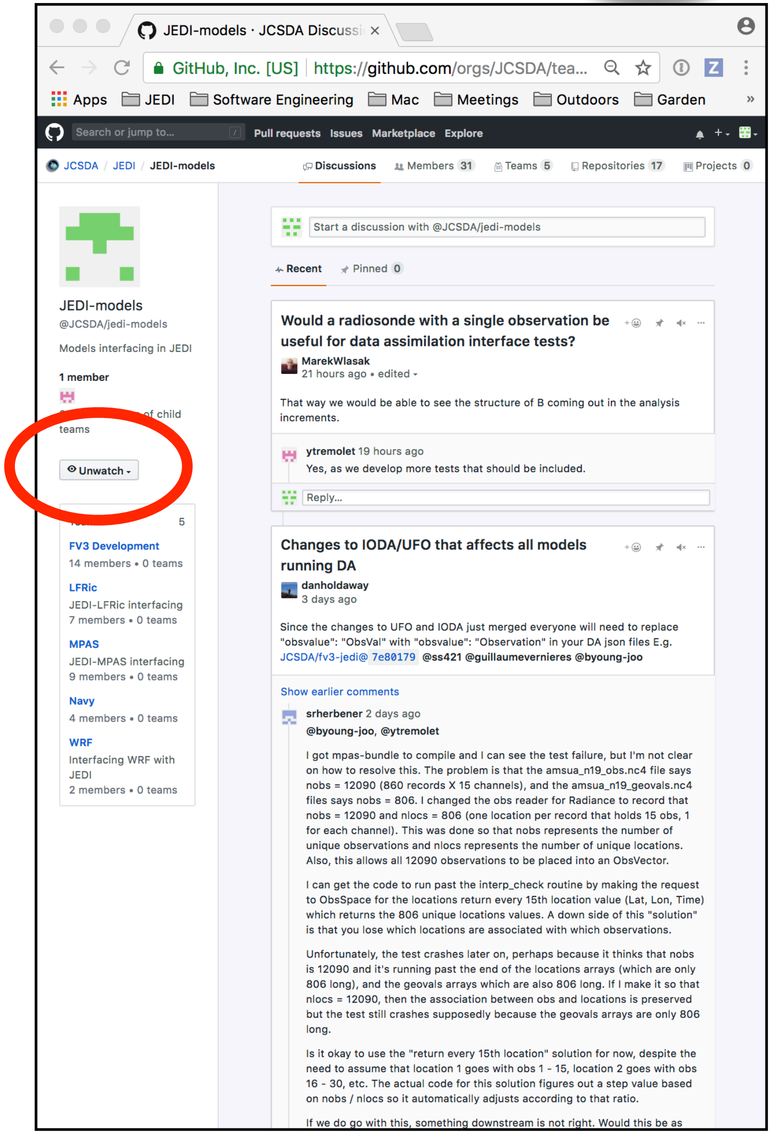


https://github.com/orgs/JCSDA/tea...

JCSDA / JEDI / JEDI-models

JEDI-models
@JCSDA/jedi-models
Models interfacing in JEDI

1 member

of child teams

5

FV3 Development
14 members • 0 teams

LFRic
JEDI-LFRic interfacing
7 members • 0 teams

MPAS
JEDI-MPAS interfacing
9 members • 0 teams

Navy
4 members • 0 teams

WRF
Interfacing WRF with JEDI
2 members • 0 teams

Start a discussion with @JCSDA/jedi-models

**Would a radiosonde with a single observation be useful for data assimilation interface tests?**

MarekWlasak
21 hours ago • edited ▾

That way we would be able to see the structure of B coming out in the analysis increments.

ytremolet 19 hours ago
Yes, as we develop more tests that should be included.

**Changes to IODA/UFO that affects all models running DA**

danholdaway
3 days ago

Since the changes to UFO and IODA just merged everyone will need to replace "obsvalue": "ObsVal" with "obsvalue": "Observation" in your DA json files E.g. JCSDA/fv3-jedi@ 7e80179 @ss421 @guillaumevernieres @byoung-joo

srherbener 2 days ago
@byoung-joo, @ytremolet

I got mpas-bundle to compile and I can see the test failure, but I'm not clear on how to resolve this. The problem is that the amsua_n19_obs.nc4 file says nobs = 12090 (860 records X 15 channels), and the amsua_n19_geovals.nc4 files says nobs = 806. I changed the obs reader for Radiance to record that nobs = 12090 and nlocs = 806 (one location per record that holds 15 obs, 1 for each channel). This was done so that nobs represents the number of unique observations and nlocs represents the number of unique locations. Also, this allows all 12090 observations to be placed into an ObsVector.

I can get the code to run past the interp_check routine by making the request to ObsSpace for the locations return every 15th location value (Lat, Lon, Time) which returns the 806 unique locations values. A down side of this "solution" is that you lose which locations are associated with which observations.

Unfortunately, the test crashes later on, perhaps because it thinks that nobs is 12090 and it's running past the end of the locations arrays (which are only 806 long), and the geovals arrays which are also 806 long. If I make it so that nlocs = 12090, then the association between obs and locations is preserved but the test still crashes supposedly because the geovals arrays are only 806 long.

Is it okay to use the "return every 15th location" solution for now, despite the need to assume that location 1 goes with obs 1 - 15, location 2 goes with obs 16 - 30, etc. The actual code for this solution figures out a step value based on nobs / nlocs so it automatically adjusts according to that ratio.

If we do go with this, something downstream is not right. Would this be as

# git/GitHub (more JEDI tips)

- *Follow git-flow naming conventions*
  - *Web hook will scold you if you don't*
  - *Git-hooks also available to prevent noncompliant pushes*
  - *Most development work occurs in feature branches*
  - *git-flow extension can be installed with usual installers (homebrew, apt-get, yum)*
  - *Example: brew install git-flow*
- *Don't push directly to develop or master*
  - *Changes to these branches are handled via pull requests*
- *Use git-LFS for large files*
- *What about forks?*
  - *For now, developers can work off the central repo*
  - *As the project grows, each parter/collaborator institution will maintain a fork (merge with central repo as needed)*
  - *Forking may also be useful for public releases*

# Life Cycle of a Feature branch

1) Enable git flow for the repo
   - git flow init -d

2) Start the feature branch
   - git flow feature start newstuff
   - Creates a new branch called feature/newstuff that branches off of develop

3) Push it to GitHub for the first time
   - Make changes and commit them locally
   - git flow feature publish newstuff

4) Additional (normal) commits and pushes as needed
   - git commit -a
   - git push

5) Bring it up to date with develop (to minimize big changes o
   - git checkout develop
   - git pull origin develop
   - git checkout feature/newstuff
   - git merge develop

6) Finish the feature branch (don't use git flow feature finish)
   - Do a pull request on GitHub from feature/newstuff to c
   - When successfully merged the remote branch will be c
   - git remote update -p
   - git branch -d feature/newstuff

***What if I can't install git-flow?***

***Just be sure to use the proper naming and branching conventions***

feature/mybranch
release/mybranch
bugfix/mybranch
hotfix/mybranch

# Resources: Git-Flow

*JEDI Git Flow page*
https://jointcenterforsatellitedataassimilation-jedi-docs.readthedocs-hosted.com/en/latest/developer/developer_tools/getting-started-with-gitflow.html

*The Git Flow manifesto (all you need to know about the philosophy):*
http://nvie.com/posts/a-successful-git-branching-model/

*Git Flow cheat sheet:*
https://danielkummer.github.io/git-flow-cheatsheet/

*Git avh (a fork of the original, with added features):*
https://github.com/petervanderdoes/gitflow-avh

*Atlassian git-flow tutorial (philosophy and application):*
https://www.atlassian.com/git/tutorials/comparing-workflows/gitflow-workflow

# Using Git-LFS

**1) Extension to git**

- brew install git-lfs

**2) See if git-lfs is already enabled for that repo**

- git lfs track

**3) If not already sufficient, then add appropriate tracking patterns**

- git lfs install # only if step 2 returns nothing
- git lfs track *.nc4

**4) Add your large files to the repo**

**5) Make sure your files and patterns are tracked by git**

- git add .gittattributes
- git add * # new files

**6) commit, push, pull, fetch, clone and proceed as you would with any other repo**

# Resources: Git-LFS

***JEDI Git-LFS page***

https://jointcenterforsatellitedataassimilation-jedi-docs.readthedocs-hosted.com/en/latest/developer/developer_tools/gitlfs.html

***GitHub's Help page:***

https://help.github.com/articles/about-git-large-file-storage/

***Tutorial:***

https://github.com/git-lfs/git-lfs/wiki/Tutorial

***Installation? Already installed in the JEDI singularity container***

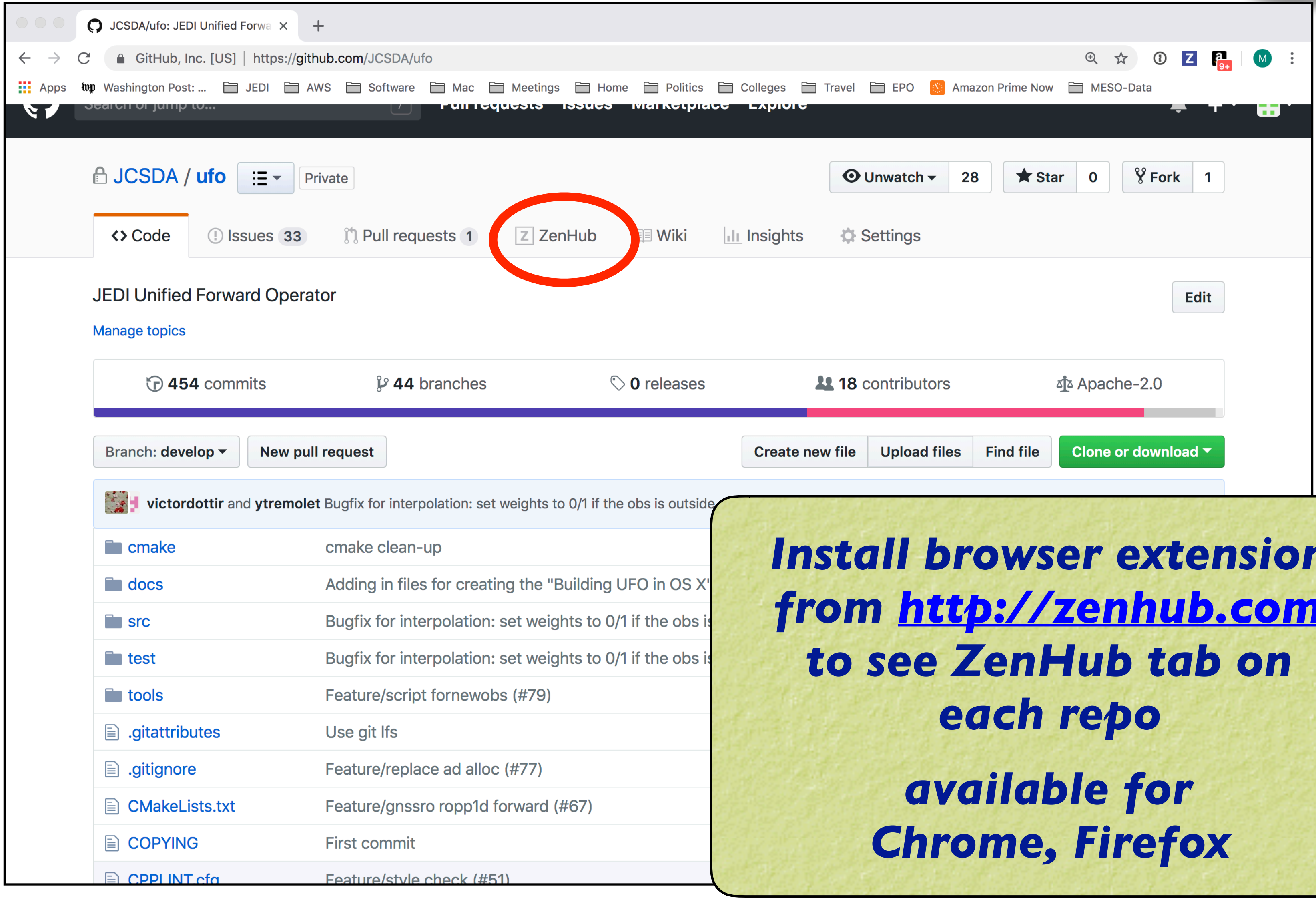
***Binaries available for download on:***

https://git-lfs.github.com

***Or, on a Mac:***

```
brew install git-lfs
```

# Using ZenHub



JCSDA/ufo: JEDI Unified Forwa

GitHub, Inc. [US] | https://github.com/JCSDA/ufo

Apps | Washington Post: ... | JEDI | AWS | Software | Mac | Meetings | Home | Politics | Colleges | Travel | EPO | Amazon Prime Now | MESO-Data

JCSDA / ufo | Private

Unwatch 28 | Star 0 | Fork 1

Code | Issues 33 | Pull requests 1 | ZenHub | Wiki | Insights | Settings

JEDI Unified Forward Operator

Edit

Manage topics

454 commits | 44 branches | 0 releases | 18 contributors | Apache-2.0

Branch: develop | New pull request | Create new file | Upload files | Find file | Clone or download

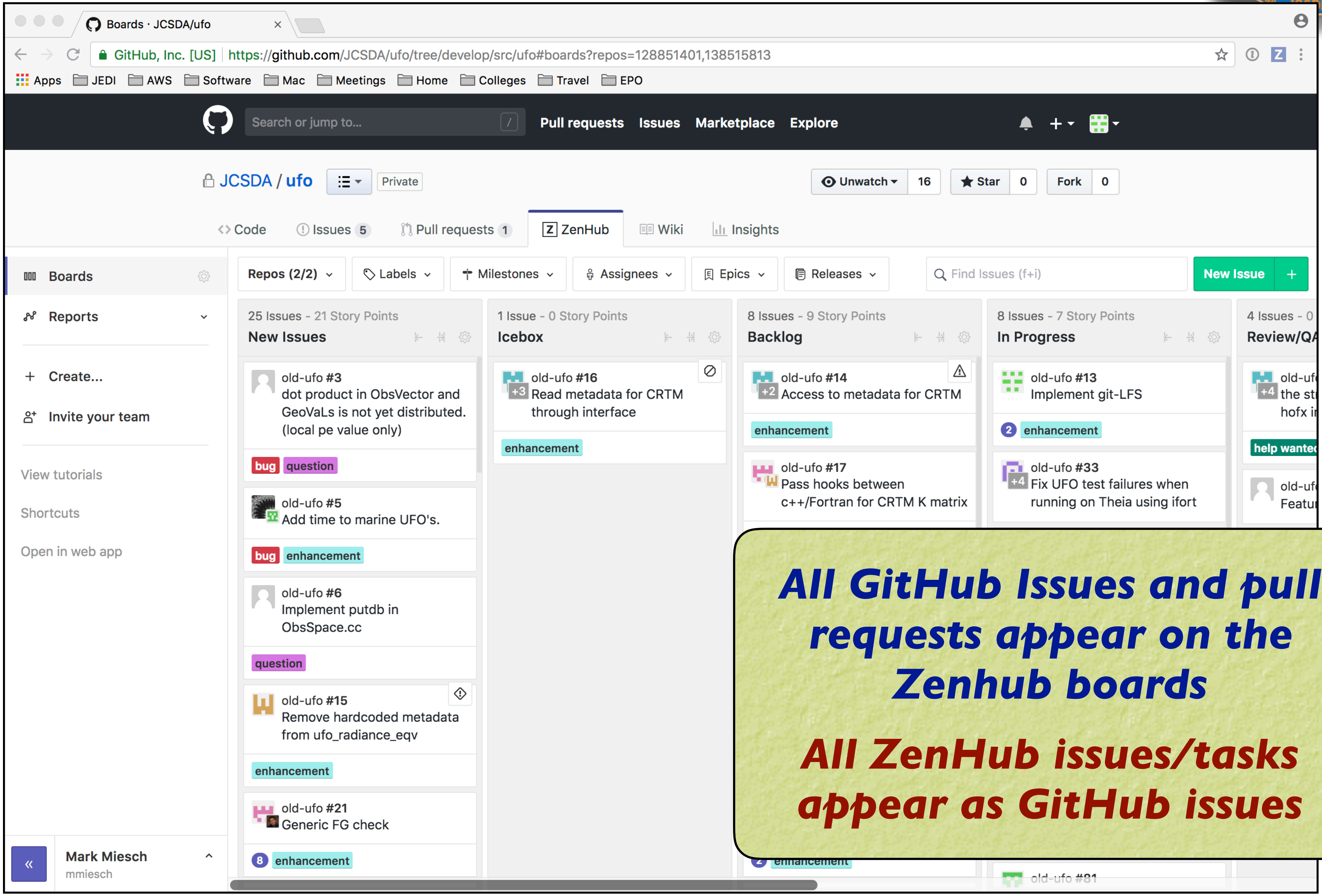
victordottir and ytremolet Bugfix for interpolation: set weights to 0/1 if the obs is outside

| | |
|---|---|
| cmake | cmake clean-up |
| docs | Adding in files for creating the "Building UFO in OS X" |
| src | Bugfix for interpolation: set weights to 0/1 if the obs i |
| test | Bugfix for interpolation: set weights to 0/1 if the obs i |
| tools | Feature/script fornewobs (#79) |
| .gitattributes | Use git lfs |
| .gitignore | Feature/replace ad alloc (#77) |
| CMakeLists.txt | Feature/gnssro ropp1d forward (#67) |
| COPYING | First commit |
| CPPLINT.cfg | Feature/style check (#51) |

***Install browser extension from [http://zenhub.com](http://zenhub.com) to see ZenHub tab on each repo***

***available for Chrome, Firefox***

# Using ZenHub



25 Issues - 21 Story Points
**New Issues**

- old-ufo #3 dot product in ObsVector and GeoVaLs is not yet distributed. (local pe value only) — bug, question
- old-ufo #5 Add time to marine UFO's. — bug, enhancement
- old-ufo #6 Implement putdb in ObsSpace.cc — question
- old-ufo #15 Remove hardcoded metadata from ufo_radiance_eqv — enhancement
- old-ufo #21 Generic FG check — 8 enhancement

1 Issue - 0 Story Points
**Icebox**

- old-ufo #16 Read metadata for CRTM through interface — enhancement

8 Issues - 9 Story Points
**Backlog**

- old-ufo #14 Access to metadata for CRTM — enhancement
- old-ufo #17 Pass hooks between c++/Fortran for CRTM K matrix

8 Issues - 7 Story Points
**In Progress**

- old-ufo #13 Implement git-LFS — 2 enhancement
- old-ufo #33 Fix UFO test failures when running on Theia using ifort
- old-ufo #81

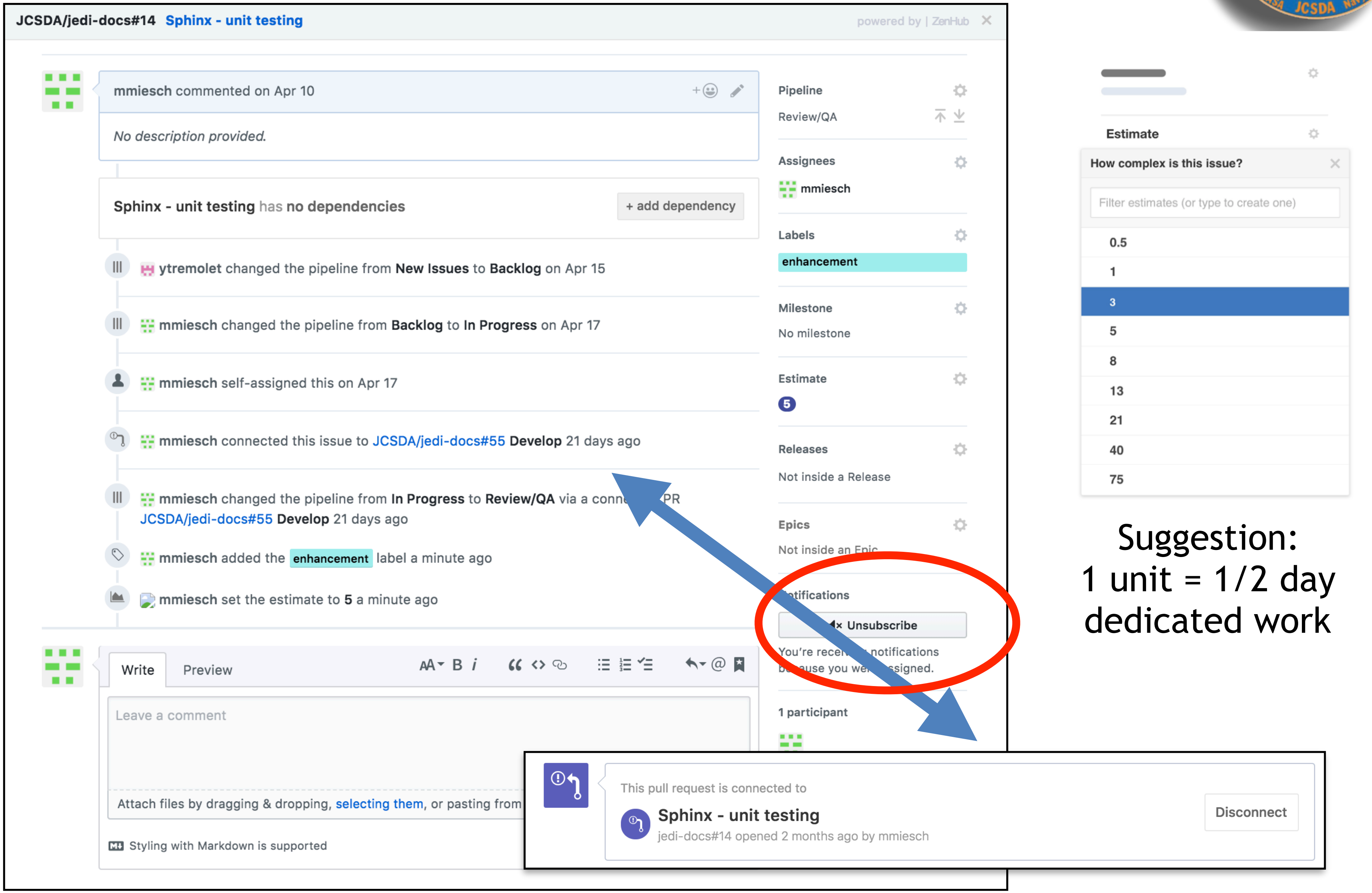
4 Issues - 0
**Review/QA**

- old-ufo the st hofx i — help wanted
- old-ufo Featu

***All GitHub Issues and pull requests appear on the Zenhub boards***

***All ZenHub issues/tasks appear as GitHub issues***

# ZenHub Issues/Tasks



JCSDA/jedi-docs#14 Sphinx - unit testing

mmiesch commented on Apr 10

*No description provided.*

Sphinx - unit testing has no dependencies

ytremolet changed the pipeline from **New Issues** to **Backlog** on Apr 15

mmiesch changed the pipeline from **Backlog** to **In Progress** on Apr 17

mmiesch self-assigned this on Apr 17

mmiesch connected this issue to JCSDA/jedi-docs#55 **Develop** 21 days ago

mmiesch changed the pipeline from **In Progress** to **Review/QA** via a conn... PR JCSDA/jedi-docs#55 **Develop** 21 days ago

mmiesch added the enhancement label a minute ago

mmiesch set the estimate to **5** a minute ago

Write
Preview
Leave a comment
Attach files by dragging & dropping, selecting them, or pasting from
Styling with Markdown is supported

Pipeline: Review/QA

Assignees: mmiesch

Labels: enhancement

Milestone: No milestone

Estimate: 5

Releases: Not inside a Release

Epics: Not inside an Epic

Notifications

You're rece... notifications b...use you we... ssigned.

1 participant

Estimate

How complex is this issue?

- 0.5
- 1
- 3
- 5
- 8
- 13
- 21
- 40
- 75

This pull request is connected to

Sphinx - unit testing

jedi-docs#14 opened 2 months ago by mmiesch

Suggestion:
1 unit = 1/2 day
dedicated work

# ZenHub: Milestones and Epics

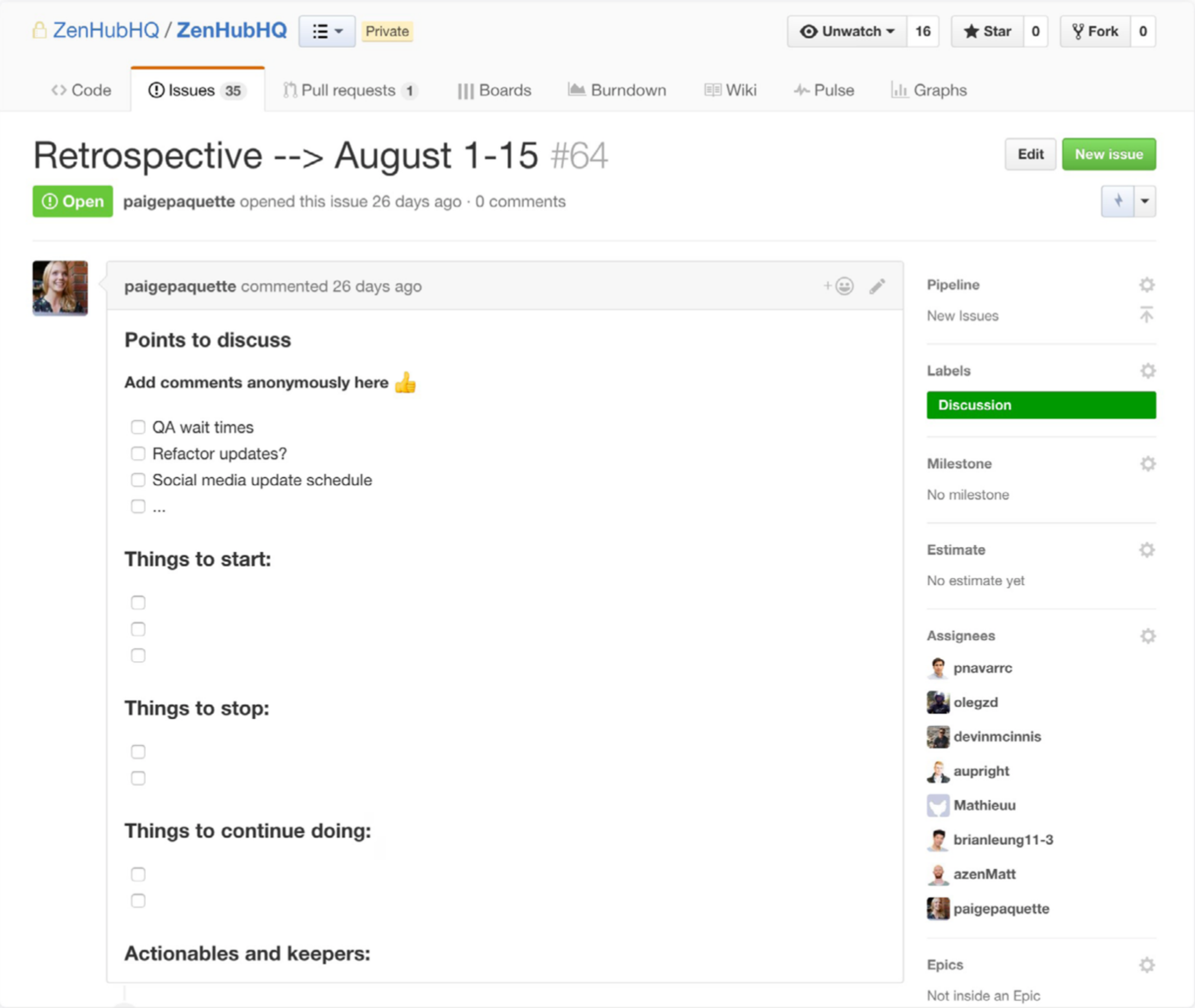
- ***Milestones (Sprints)***
  - ***Short-term (~ 2 weeks)***
  - ***Focused work, often on 1-2 repos***
  - ***Deliverables = specific functionality/features***

- ***Epics***
  - ***Long-term (indefinite)***
  - ***Typically span multiple repos***
  - ***Deliverables = releases, guiding vision***

***Project boards include filters to view only issues associated with Milestones, Epics or other attributes (assignee, label, repo, release…)***

# ZenHub: Sprint Retrospective

***Sprint Retrospectives and other agile workflow components (Sprint Review, Release Planning, etc) are best done face-to-face, but one could in principle dedicate an issue or a pipeline to solicit further perspectives***



Retrospective --> August 1-15 #64

paigepaquette opened this issue 26 days ago · 0 comments

paigepaquette commented 26 days ago

**Points to discuss**

**Add comments anonymously here** 👍

- □ QA wait times
- □ Refactor updates?
- □ Social media update schedule
- □ ...

**Things to start:**

- □
- □
- □

**Things to stop:**

- □
- □

**Things to continue doing:**

- □
- □

**Actionables and keepers:**

Pipeline: New Issues

Labels: Discussion

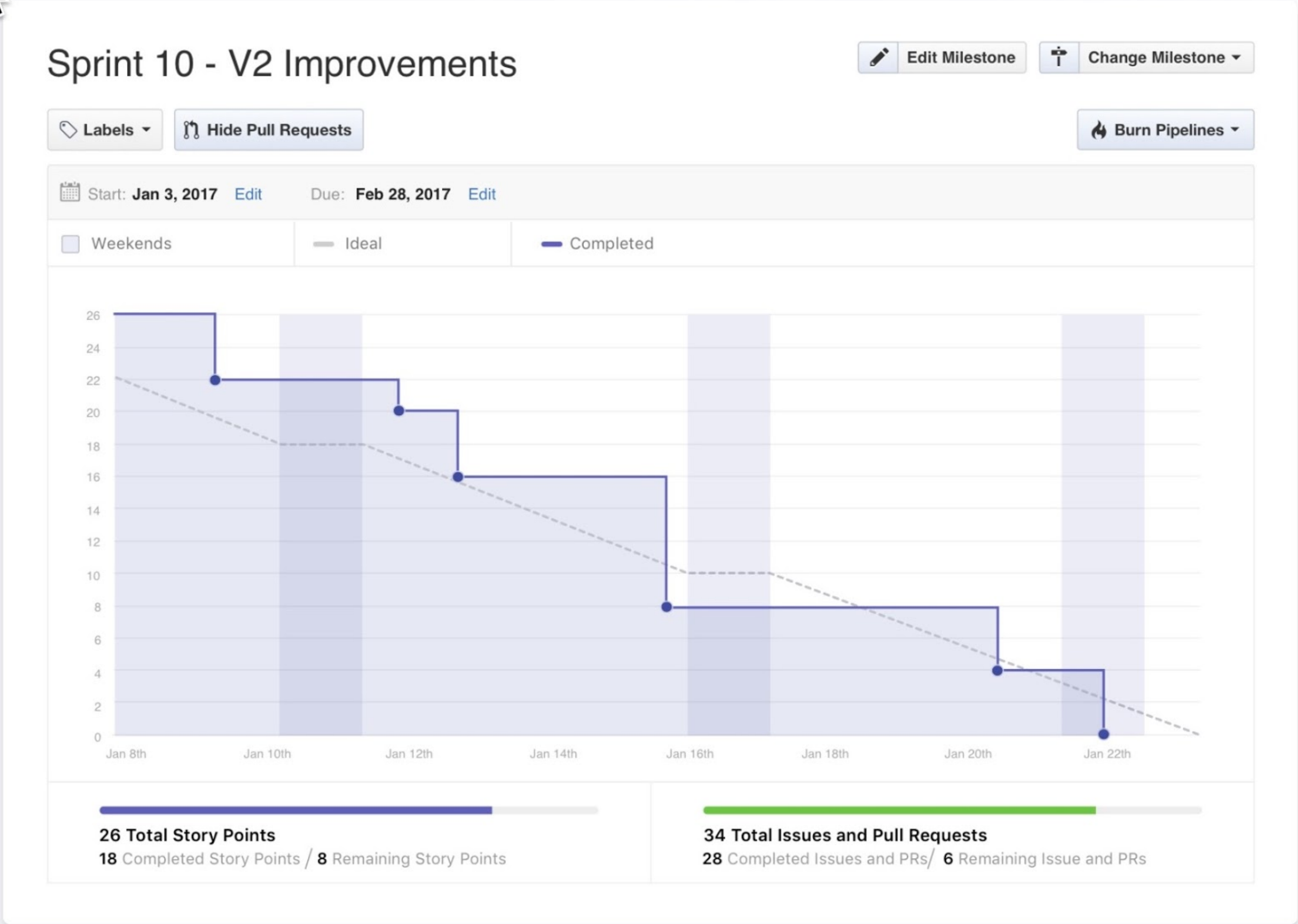
Milestone: No milestone

Estimate: No estimate yet

Assignees: pnavarrc, olegzd, devinmcinnis, aupright, Mathieuu, brianleung11-3, azenMatt, paigepaquette

Epics: Not inside an Epic

# ZenHub: Burndown chart



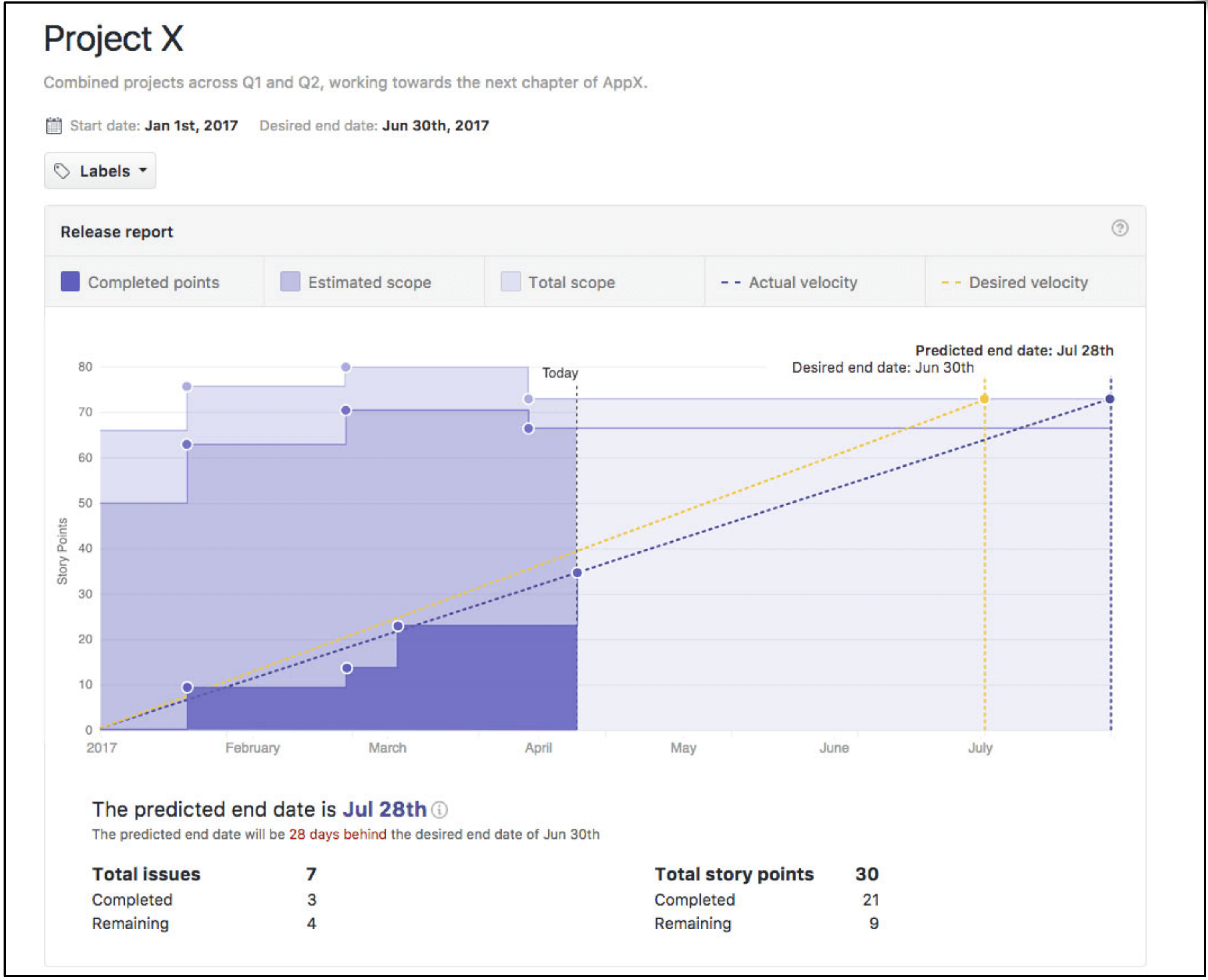
## Sprint 10 - V2 Improvements

Start: **Jan 3, 2017** Due: **Feb 28, 2017**

**26 Total Story Points**
**18** Completed Story Points / **8** Remaining Story Points

**34 Total Issues and Pull Requests**
**28** Completed Issues and PRs/ **6** Remaining Issue and PRs

# ZenHub: Release Report



## Project X

Combined projects across Q1 and Q2, working towards the next chapter of AppX.

Start date: **Jan 1st, 2017**   Desired end date: **Jun 30th, 2017**

**Release report**

The predicted end date is **Jul 28th**

The predicted end date will be 28 days behind the desired end date of Jun 30th

| | | | |
|---|---|---|---|
| **Total issues** | **7** | **Total story points** | **30** |
| Completed | 3 | Completed | 21 |
| Remaining | 4 | Remaining | 9 |

# Resources: ZenHub/GitHub

***ZenHub Guides***
https://www.zenhub.com/guides

***Extensive GitHub documentation & tutorials***
https://help.github.com

***Lots of Great Github Cheat Sheets***
https://education.github.com/git-cheat-sheet-education.pdf
https://jan-krueger.net/git-cheat-sheet-extended-edition
https://patrickzahnd.ch/uploads/git-transport-v1.png

# Doxygen

Doxygen

*Used in JEDI for:*

- *Documenting functions and subroutines (C++ and F90)*
- *Documenting classes and structures (C++ and F90)*
- *Viewing namespaces and modules*
- *Generating Class Hierarchies*
- *Generating Call diagrams*
- *Any other documentation that involves specific blocks of code*

*Whenever you add code to any JEDI Repo, please document it with Doxygen*

# Doxygen Implementation Plan

- ***User/Developers (this means you!)***
  - ✦Please place appropriate Doxygen comments in source files
  - ✦(optionally) test functionality by compiling with Doxygen config files provided by JEDI team (feel free to customize, but please don’t commit your changes)
    - Find Doxyfile (the plan is to have one in the Documents directory of every repo)

```
> doxygen
```

    - View results in html directory

- ***JEDI Core Team***
  - ✦Will supply the Doxyfile config files
  - ✦Will publish html files for develop and master versions of repos (generated automatically, triggered by pull requests)
  - ✦Tagged versions linked to releases
  - ✦Please be patient - We’re still working on this

# Documenting Fortran Source Code

```
! ! ————————————————————————————————————————————————————
!> \brief Example function
!!
!! \details **myfunction()** takes a and b as arguments and miraculously creates c.
!! I could add many more details here if I chose to do so.  I can even make a list:
!! * item 1
!! * item 2
!! * item 3
!!
!! \date A long, long, time ago: Created by L. Skywalker (JCSDA)
!!
!! \warning This isn't a real function!
!!
subroutine myfunction(a, b, c)
   integer, intent(in)              :: a !< this is one input parameter
   integer, intent(in)              :: b !< this is another
   real(kind=kind_rea), intent(out) :: c !< and this is the output
   [...]
```

# Documenting C++ Source Code

```
// -----------------------------------------------------------------------------
/*! \brief Example function
*
* \details **myfunction()** takes a and b as arguments and miraculously creates c.
* I could add many more details here if I chose to do so.  I can even make a list:
* * item 1
* * item 2
* * item 3
*
* \param[in] a this is one input parameter
* \param[in] b this is another
* \param[out] c and this is the output
*
* \date A long, long, time ago: Created by L. Skywalker (JCSDA)
*
* \warning This isn't a real function!
*
*/
void myfunction(int& a, int& b, double& c) {
   [...]
```

# Useful Doxygen Commands

- \brief
- \details
- \param
- \return
- \author
- \date
- \note
- \attention
- \warning
- \bug
- \class <name> [<header-file>]
- \mainpage
- \f$ … \f$ (inline formula)
- \f[ … \f] (formula block)
- \em (or * … *)
- \sa (see also)
- \typedef
- \todo
- \version
- \namespace
- […](…) (url)
- \image
- \var
- \throws (exception description)

***Many more described here:***

**https://www.stack.nl/~dimitri/doxygen/manual/commands.html**

# Doxygen Example

Doxygen

To see (and play with) example Doxygen output generated for

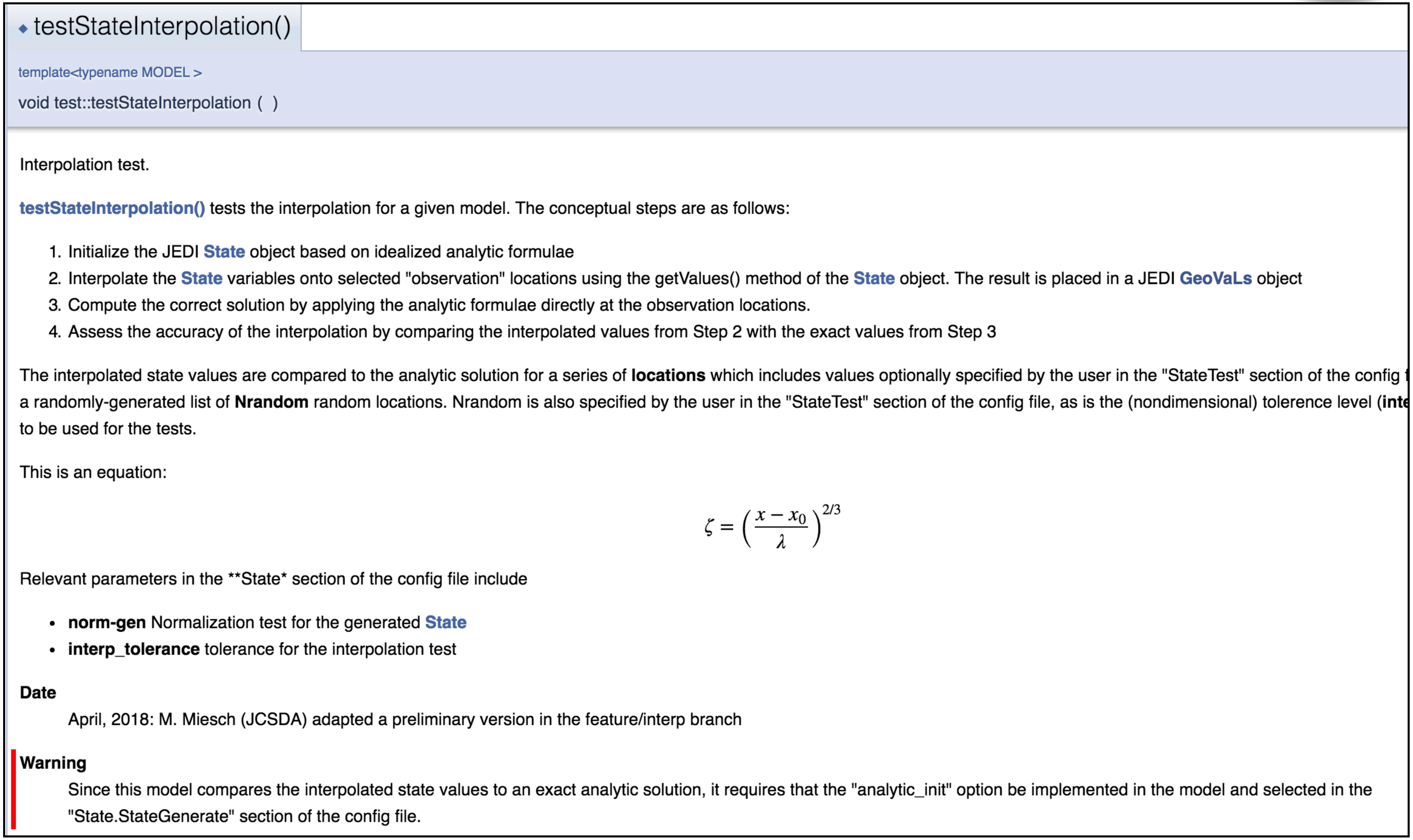
fv3-bundle

Go to

[http://academy.jcsda.org/nov2018](http://academy.jcsda.org/nov2018)

And select the appropriate menu item

# Sample output: “man page”



## ◆ testStateInterpolation()

template<typename MODEL >

void test::testStateInterpolation ( )

Interpolation test.

**testStateInterpolation()** tests the interpolation for a given model. The conceptual steps are as follows:

1. Initialize the JEDI **State** object based on idealized analytic formulae
2. Interpolate the **State** variables onto selected "observation" locations using the getValues() method of the **State** object. The result is placed in a JEDI **GeoVaLs** object
3. Compute the correct solution by applying the analytic formulae directly at the observation locations.
4. Assess the accuracy of the interpolation by comparing the interpolated values from Step 2 with the exact values from Step 3

The interpolated state values are compared to the analytic solution for a series of **locations** which includes values optionally specified by the user in the "StateTest" section of the config f a randomly-generated list of **Nrandom** random locations. Nrandom is also specified by the user in the "StateTest" section of the config file, as is the (nondimensional) tolerence level (**inte** to be used for the tests.

This is an equation:

$$\zeta = \left(\frac{x - x_0}{\lambda}\right)^{2/3}$$

Relevant parameters in the **State* section of the config file include

- **norm-gen** Normalization test for the generated **State**
- **interp_tolerance** tolerance for the interpolation test

**Date**

April, 2018: M. Miesch (JCSDA) adapted a preliminary version in the feature/interp branch

**Warning**

Since this model compares the interpolated state values to an exact analytic solution, it requires that the "analytic_init" option be implemented in the model and selected in the "State.StateGenerate" section of the config file.

# Corresponding code

```
// ---------------------------------------------------------------------------
/*! \brief Interpolation test
 *
 * \details **testStateInterpolation()** tests the interpolation for a given
 * model.  The conceptual steps are as follows:
 * 1. Initialize the JEDI State object based on idealized analytic formulae
 * 2. Interpolate the State variables onto selected "observation" locations
 *    using the getValues() method of the State object.  The result is
 *    placed in a JEDI GeoVaLs object
 * 3. Compute the correct solution by applying the analytic formulae directly
 *    at the observation locations.
 * 4. Assess the accuracy of the interpolation by comparing the interpolated
 *    values from Step 2 with the exact values from Step 3
 *
 * The interpolated state values are compared to the analytic solution for
 * a series of **locations** which includes values optionally specified by the
 * user in the "StateTest" section of the config file in addition to a
 * randomly-generated list of **Nrandom** random locations.  Nrandom is also
 * specified by the user in the "StateTest" section of the config file, as is the
 * (nondimensional) tolerence level (**interp_tolerance**) to be used for the tests.
[…]
```

# Corresponding code (cont.)

```
[…]
 *
 * This is an equation:
 * \f[ \zeta = \left(\frac{x-x_0}{\lambda}\right)^{2/3} \f]
 *
 * Relevant parameters in the **State* section of the config file include
 *
 * * **norm-gen** Normalization test for the generated State
 * * **interp_tolerance** tolerance for the interpolation test
 *
 * \date April, 2018: M. Miesch (JCSDA) adapted a preliminary version in the
 * feature/interp branch
 *
 * \warning Since this model compares the interpolated state values to an exact analytic
 * solution, it requires that the "analytic_init" option be implemented in the model and
 * selected in the "State.StateGenerate" section of the config file.
 */
```

# Doxygen Installation (Mac)

```
> brew install doxygen
```

**You may be prompted to also install Doxywizard and Graphviz - we recommend you say yes to both… If Graphviz does not install for some reason, you can install it manually:**

```
> brew install graphviz
```

**This puts dot in /usr/local/bin**
**You'll need this for generating graphs**

# Doxygen Resources

***JEDI Doxygen page***

**https://jointcenterforsatellitedataassimilation-jedi-docs.readthedocs-hosted.com/en/latest/developer/developer_tools/doxygen.html**

***Doxygen Users Manual***

**http://www.stack.nl/~dimitri/doxygen/manual/index.html**

***Installation? Already installed in the JEDI singularity container***

***Binaries available for download on:***

**http://www.stack.nl/~dimitri/doxygen/download.html**

***Or, on a Mac:***

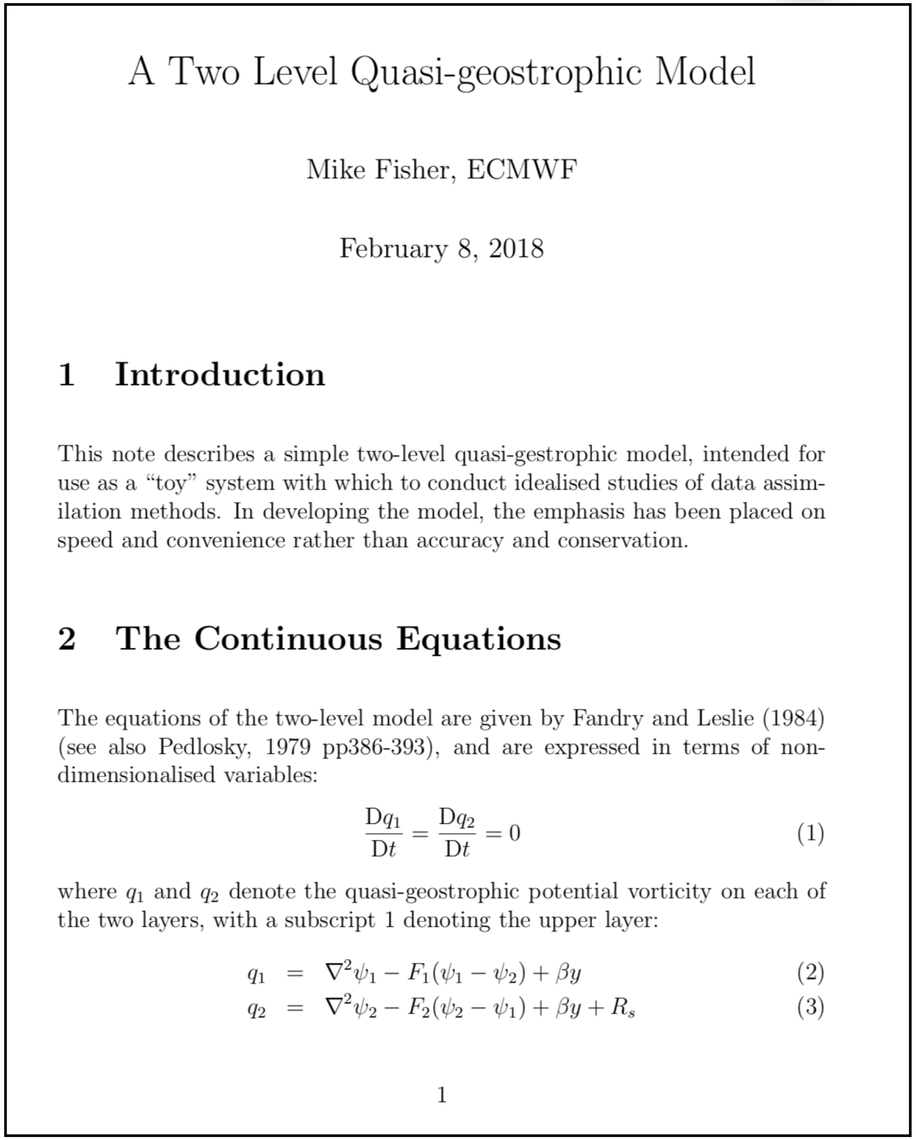
```
brew install doxygen
```

# Other documentation

In a few cases, other sorts of documentation (often pdf) may be available in the Documents directory of a repo

Example: oops

Generally, we plan to link to these pdfs from the Doxygen pages



## A Two Level Quasi-geostrophic Model

Mike Fisher, ECMWF

February 8, 2018

### 1 Introduction

This note describes a simple two-level quasi-gestrophic model, intended for use as a "toy" system with which to conduct idealised studies of data assimilation methods. In developing the model, the emphasis has been placed on speed and convenience rather than accuracy and conservation.

### 2 The Continuous Equations

The equations of the two-level model are given by Fandry and Leslie (1984) (see also Pedlosky, 1979 pp386-393), and are expressed in terms of non-dimensionalised variables:

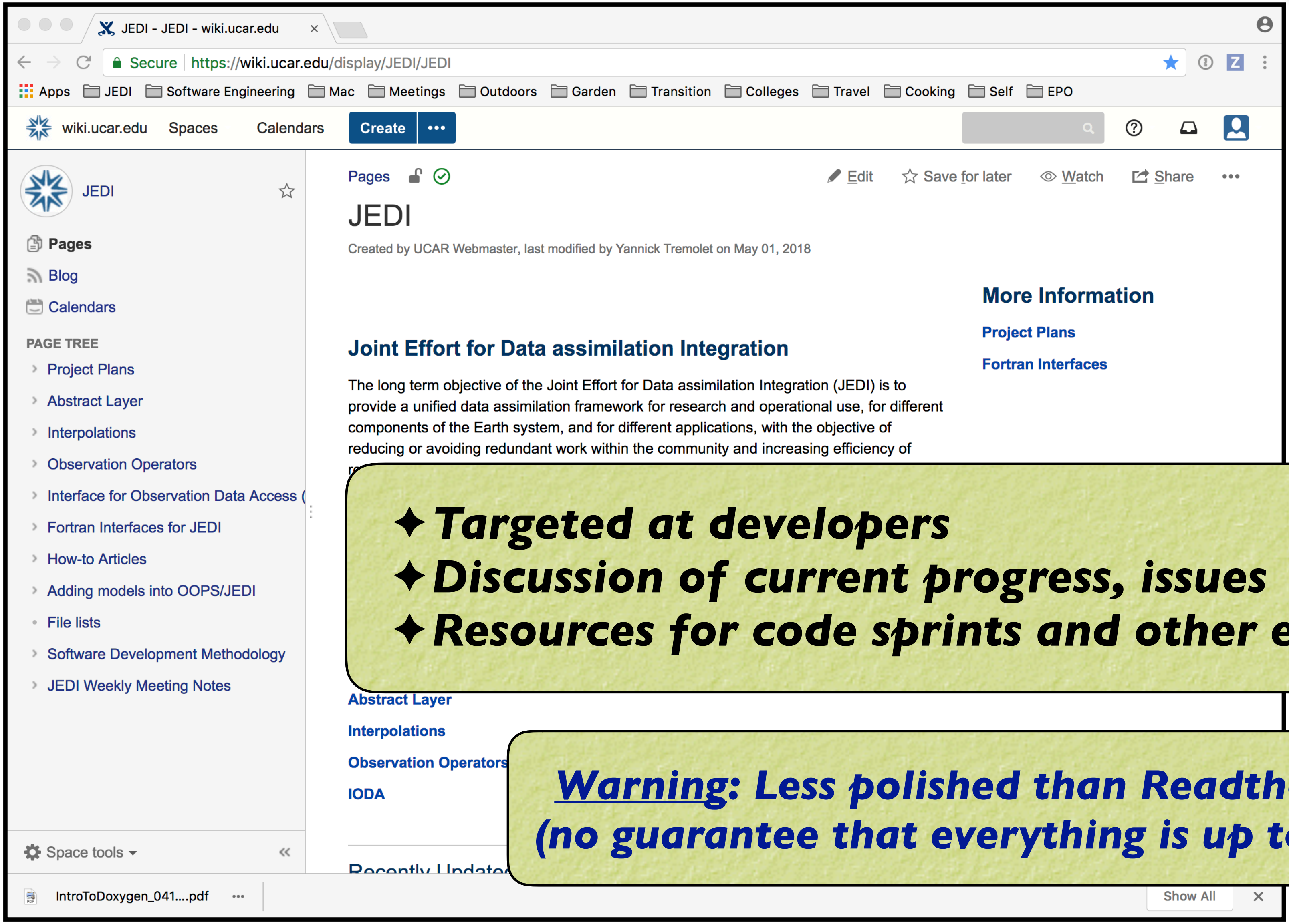
$$\frac{\mathrm{D}q_1}{\mathrm{D}t} = \frac{\mathrm{D}q_2}{\mathrm{D}t} = 0 \qquad (1)$$

where $q_1$ and $q_2$ denote the quasi-geostrophic potential vorticity on each of the two layers, with a subscript 1 denoting the upper layer:

$$\begin{aligned} q_1 &= \nabla^2\psi_1 - F_1(\psi_1 - \psi_2) + \beta y && (2)\\ q_2 &= \nabla^2\psi_2 - F_2(\psi_2 - \psi_1) + \beta y + R_s && (3) \end{aligned}$$

1

# JEDI Wiki



JEDI

Created by UCAR Webmaster, last modified by Yannick Tremolet on May 01, 2018

More Information

Project Plans

Fortran Interfaces

Joint Effort for Data assimilation Integration

The long term objective of the Joint Effort for Data assimilation Integration (JEDI) is to provide a unified data assimilation framework for research and operational use, for different components of the Earth system, and for different applications, with the objective of reducing or avoiding redundant work within the community and increasing efficiency of r

Abstract Layer

Interpolations

Observation Operators

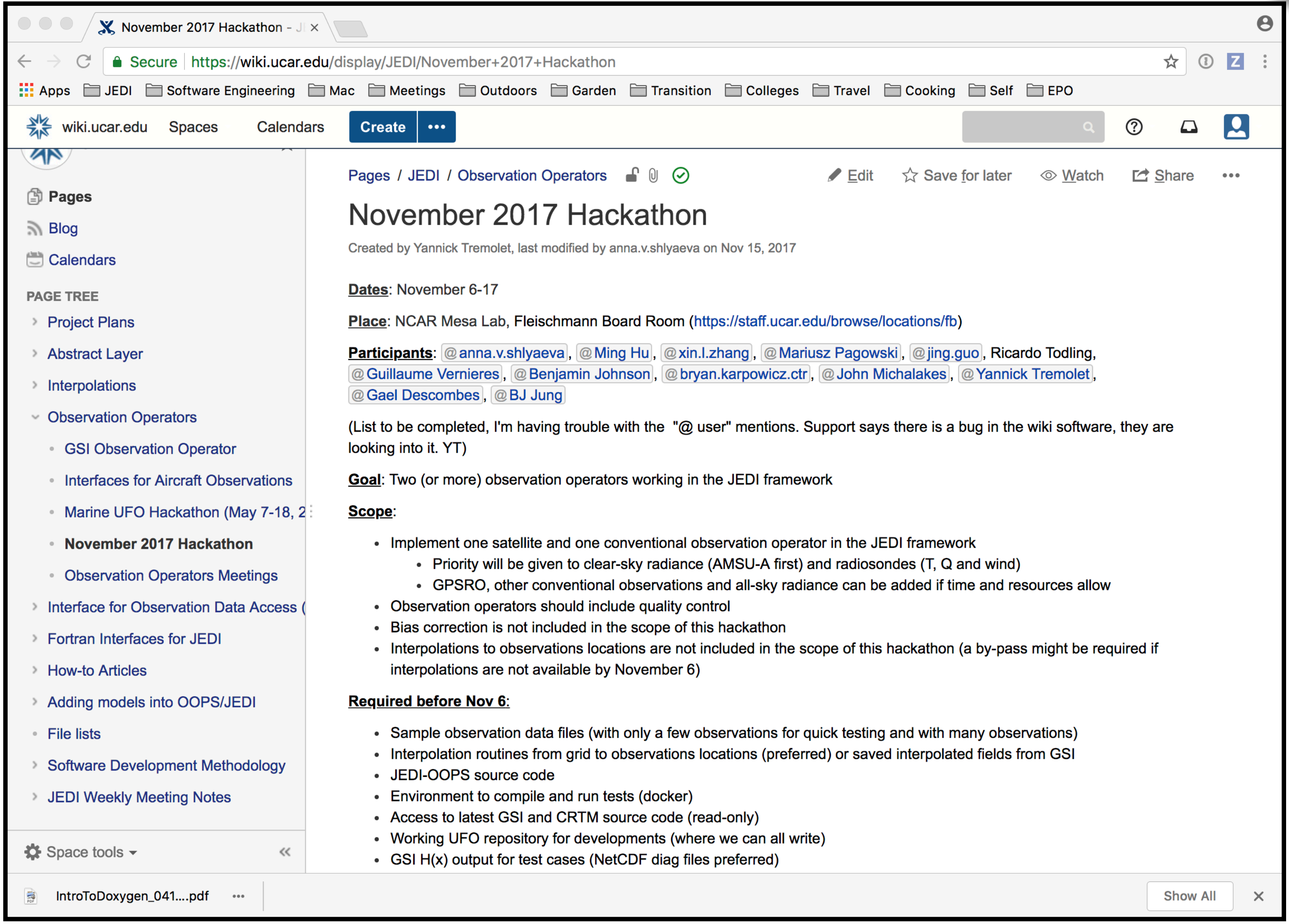
IODA

Recently Update

- ✦ ***Targeted at developers***
- ✦ ***Discussion of current progress, issues***
- ✦ ***Resources for code sprints and other events***

***Warning**: Less polished than ReadtheDocs (no guarantee that everything is up to date)*

# JEDI Wiki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Interface for Observation Data Access (
Fortran Interfaces for JEDI
How-to Articles
Adding models into OOPS/JEDI
File lists
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## November 2017 Hackathon

Created by Yannick Tremolet, last modified by anna.v.shlyaeva on Nov 15, 2017

**Dates**: November 6-17

**Place**: NCAR Mesa Lab, Fleischmann Board Room (https://staff.ucar.edu/browse/locations/fb)

**Participants**: @anna.v.shlyaeva, @Ming Hu, @xin.l.zhang, @Mariusz Pagowski, @jing.guo, Ricardo Todling, @Guillaume Vernieres, @Benjamin Johnson, @bryan.karpowicz.ctr, @John Michalakes, @Yannick Tremolet, @Gael Descombes, @BJ Jung

(List to be completed, I'm having trouble with the "@ user" mentions. Support says there is a bug in the wiki software, they are looking into it. YT)

**Goal**: Two (or more) observation operators working in the JEDI framework

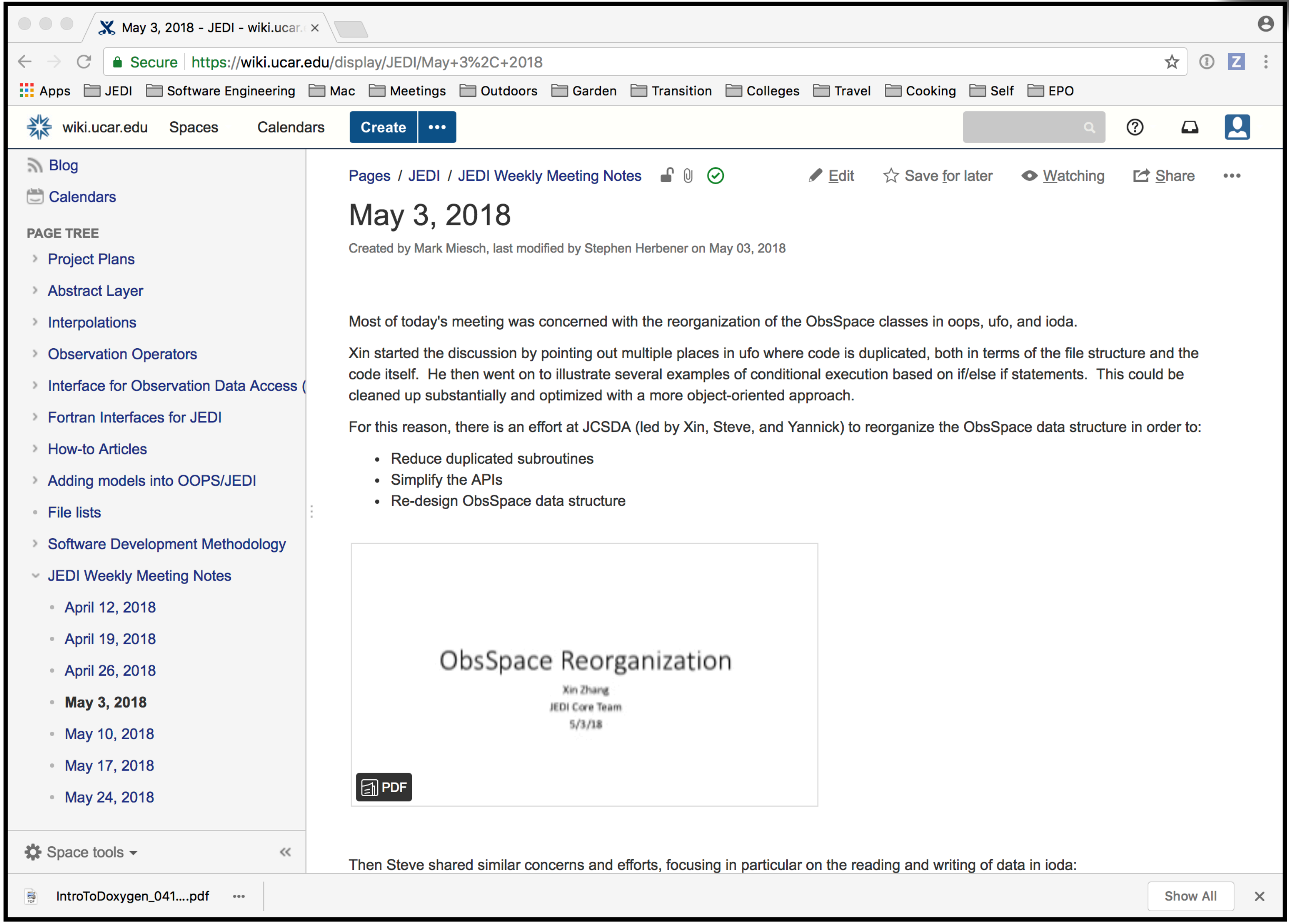
**Scope**:

- Implement one satellite and one conventional observation operator in the JEDI framework
  - Priority will be given to clear-sky radiance (AMSU-A first) and radiosondes (T, Q and wind)
  - GPSRO, other conventional observations and all-sky radiance can be added if time and resources allow
- Observation operators should include quality control
- Bias correction is not included in the scope of this hackathon
- Interpolations to observations locations are not included in the scope of this hackathon (a by-pass might be required if interpolations are not available by November 6)

**Required before Nov 6**:

- Sample observation data files (with only a few observations for quick testing and with many observations)
- Interpolation routines from grid to observations locations (preferred) or saved interpolated fields from GSI
- JEDI-OOPS source code
- Environment to compile and run tests (docker)
- Access to latest GSI and CRTM source code (read-only)
- Working UFO repository for developments (where we can all write)
- GSI H(x) output for test cases (NetCDF diag files preferred)

# JEDI Wiki: Weekly Meeting Notes



## May 3, 2018

Created by Mark Miesch, last modified by Stephen Herbener on May 03, 2018

Most of today's meeting was concerned with the reorganization of the ObsSpace classes in oops, ufo, and ioda.

Xin started the discussion by pointing out multiple places in ufo where code is duplicated, both in terms of the file structure and the code itself. He then went on to illustrate several examples of conditional execution based on if/else if statements. This could be cleaned up substantially and optimized with a more object-oriented approach.

For this reason, there is an effort at JCSDA (led by Xin, Steve, and Yannick) to reorganize the ObsSpace data structure in order to:

- Reduce duplicated subroutines
- Simplify the APIs
- Re-design ObsSpace data structure

ObsSpace Reorganization

Xin Zhang
JEDI Core Team
5/3/18

Then Steve shared similar concerns and efforts, focusing in particular on the reading and writing of data in ioda: