

Marine UFO code sprint May 7-18

“Agenda”

Monda-Friday: Meet at 8:50-9:00 am

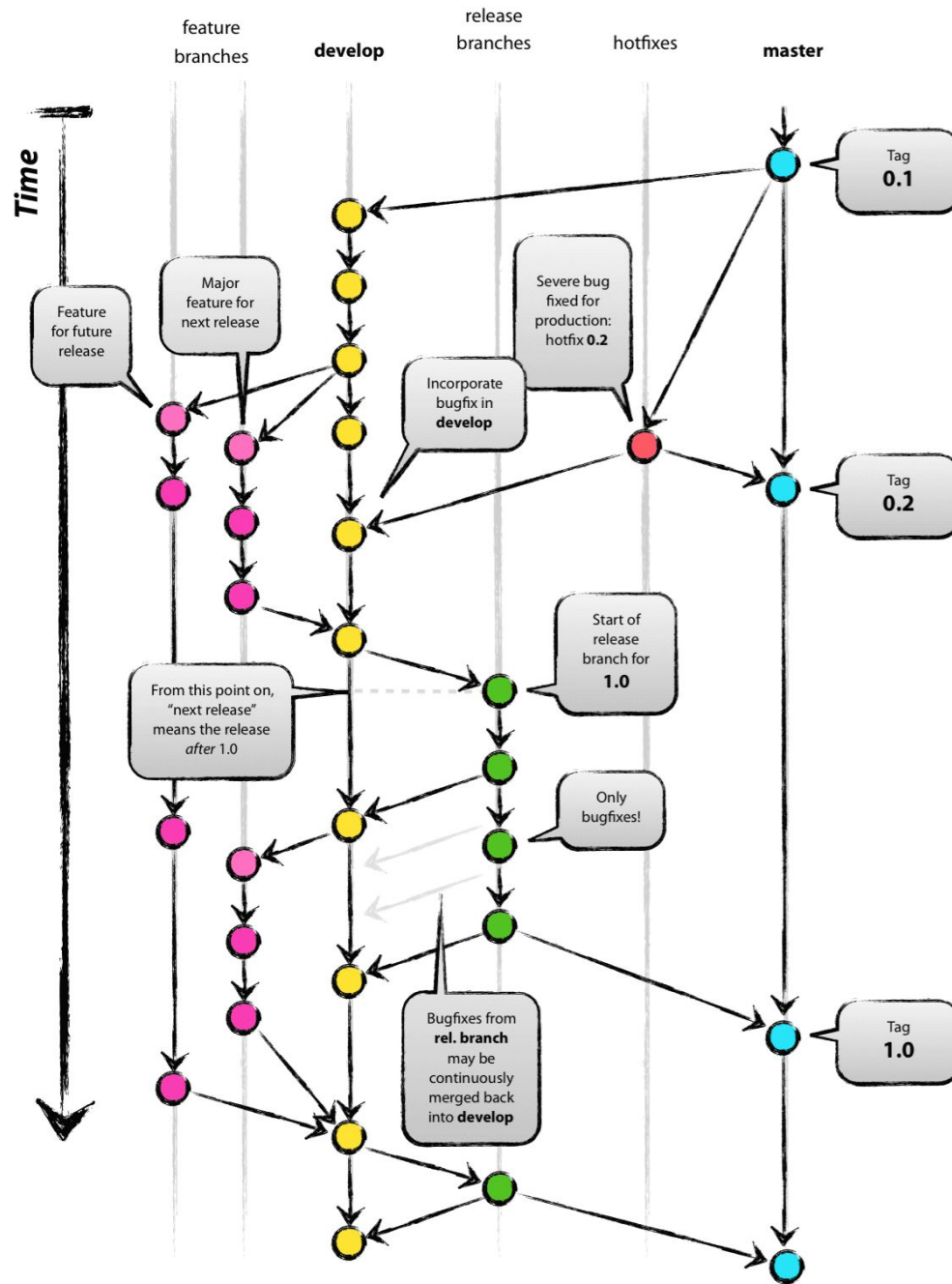
First day:

- Round table: Who you are, what do you want to get out of the 2 weeks, ...
- “Gitflow”/Zenhub
- Quick overview of UFO
- What Guillaume thinks we should be doing (/= What we should be doing)
- Brainstorm and start populating issues/work on Zenhub
- Assign people to development tasks (several people per task is OK)
- Identify goal(s)
- Sort out last installation issues, if any (see wiki):
 - Building
 - Zenhub

Last day:

- Round table: Very brief report of work achieved (1 slide, a few words, maybe a figure)

Gitflow

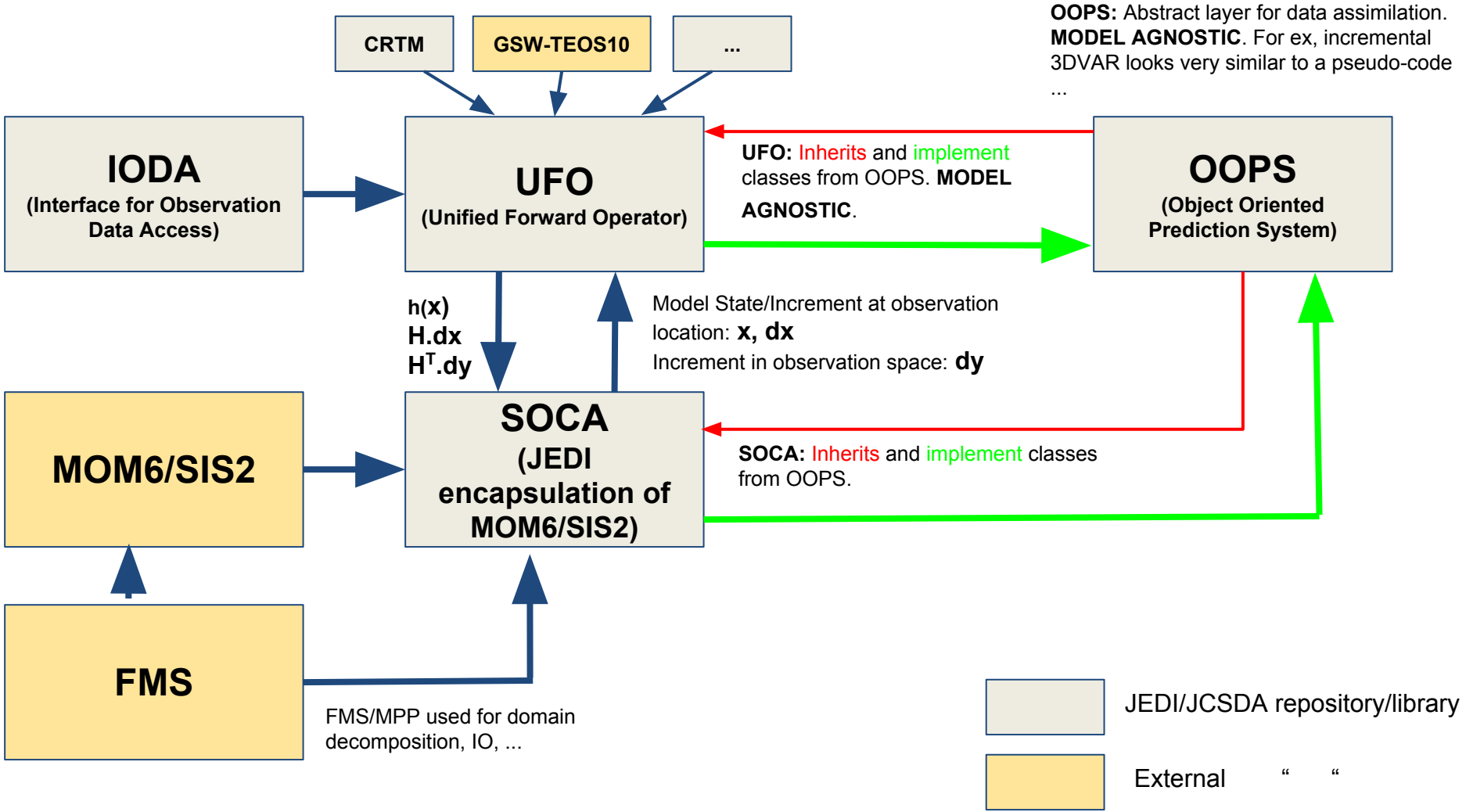




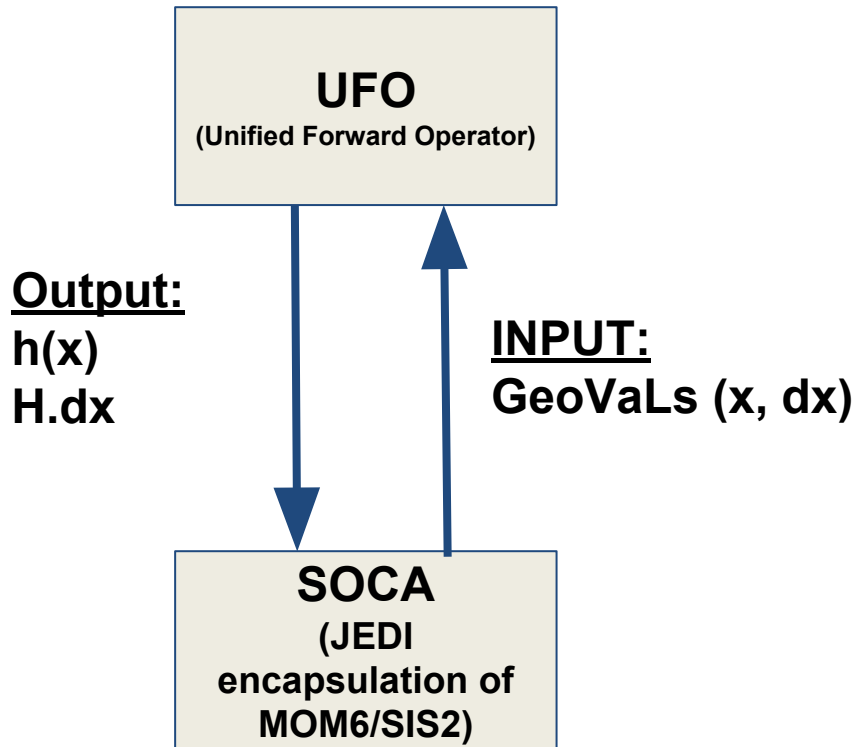
Our base branch is **feature/marine**. Merging into **develop** will be done at the end of the code sprint.

1. Create issue in Zenhub
2. Create your branch (*git checkout -b feature/coolstuff*)
3. Update branch name in soca-bundle
4. Implement the coolstuff feature
5. regularly merge **develop** into **feature/coolstuff** (*git merge develop*)
- 6. Once done: DON'T PUSH TO feature/marine.**
7. Instead: Issue a pull request on github (**feature/coolstuff** into **feature/marine**) and assign reviewer(s).
8. Once the pull request is accepted and merged/tested, delete (local and remote) the **feature/coolstuff** branch.

Marine JEDI: Encapsulation of MOM6-SIS2 (SOCA)



Forward mode:



Two approaches:

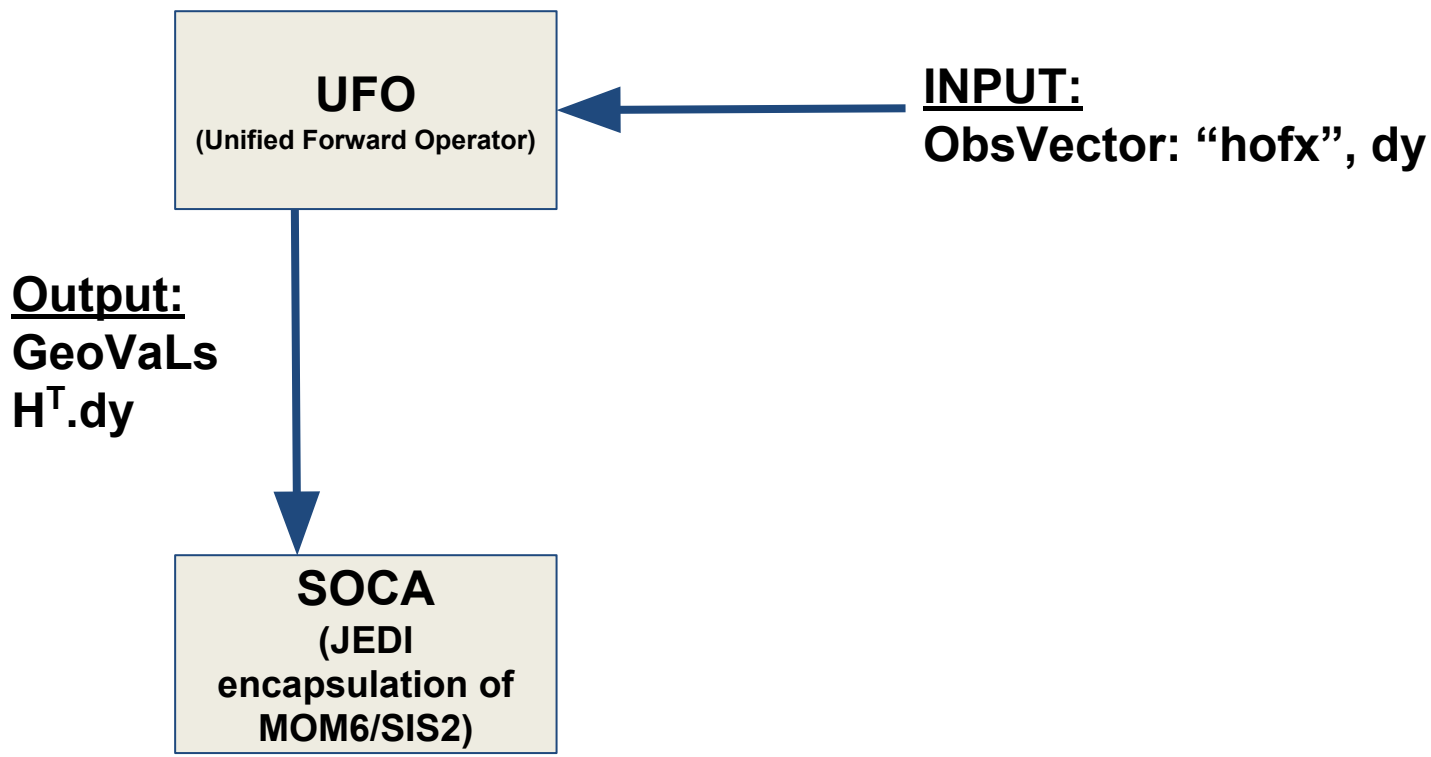
1. Directly pass interpolated model fields to UFO
 - a. Complexity in UFO
 - b. Might need several UFO definitions
2. Impose specific input to UFO. Shift part of UFO in model interface (variable transform, see FV3/Dan).
 - a. Shift some of the UFO complexity in model interface
 - b. Simplifies UFO. Too simple?

NEEDS TO BE SORTED OUT BEFORE WORK STARTS

GeoVaLs: Geophysical Values at Locations

2D interpolation is done inside SOCA

Backward mode:



Adjoint 2D interpolation is done inside SOCA

Initial to do list

Engineering work needed:

- Merge Anna's recent work?
- Merge Rahul's " ?
- Look at Xin's branches
- Depending on UFO philosophy:
 - Jacobian of gsw-TEOS10: used in insitu T, S and steric height for the development of the tlm/ad models <= This work could be shifted to the model interface
- Interface to vertical interpolation (forward and backward)

Proposed Science:

- Depending on UFO philosophy:
 - Jacobian of gsw-TEOS10: used in insitu T, S and steric height for the development of the tlm/ad models <= This work could be shifted to the model interface
- Vertical interpolation (forward and backward)
- Insitu T: applicable to Argo, CTD, XBT, TAO, PIRATA, RAMA, SST?,
 - $T_i = T_i(T_c, S_a) = T_i(T_p, S_p)$
- SST
- SSS
- Altimeter (ADT/SSHa, ...): Some work already started
- Diurnal UFO
- Drifters (upper ocean T)

Goals

- Produce 3DVAR increments using newly developed UFO's
 - Insitu T
 - Practical S
 - Sea-surface height (ssha, adt, ...)
 - ...
- Develop UFO only:
 - Significant wave height
 - Diurnal SST?
 - ...
- Outside of scope: CRTM tlm/adjoint + increment with FV3