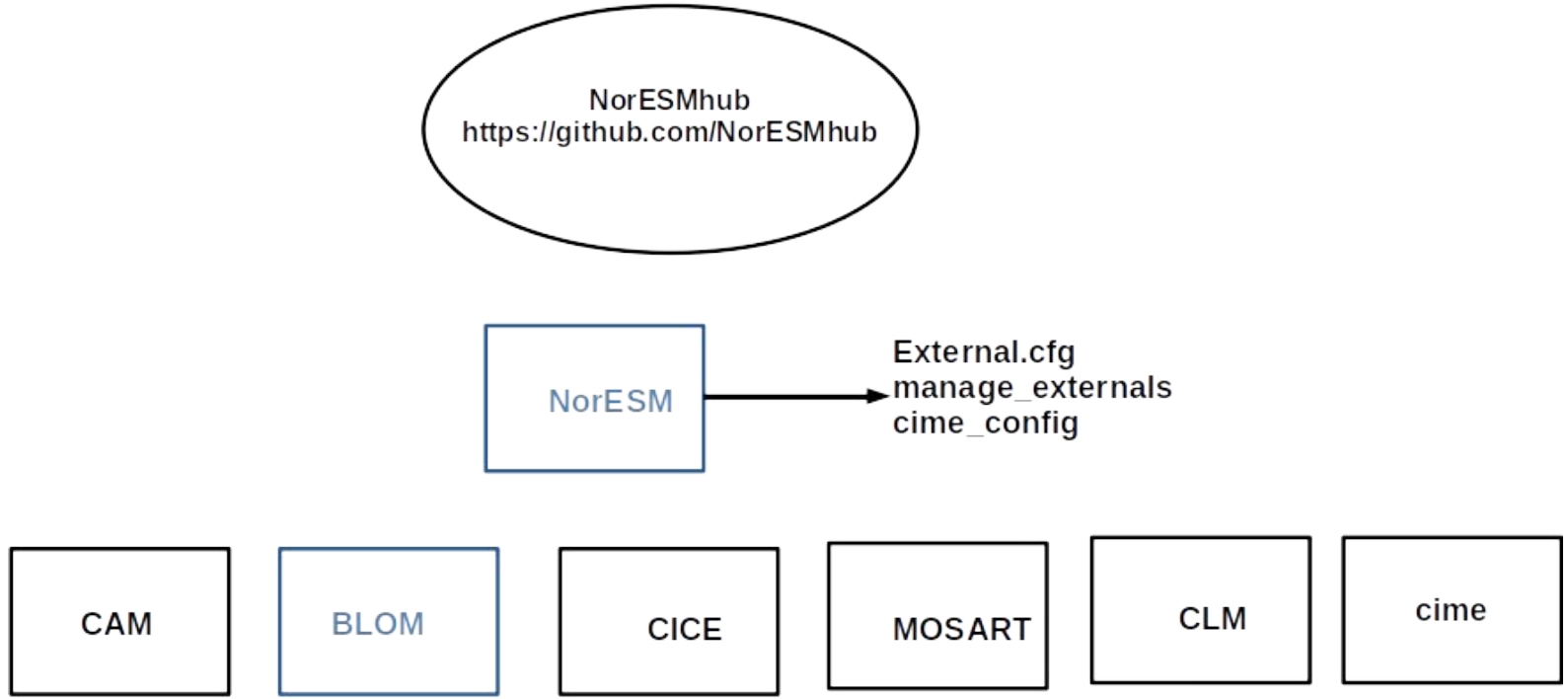
Development workflow

Contribute your own code to NorESM: basic steps

1. Create a user account on gitHub
   https://docs.github.com/en/get-started/signing-up-for-github/signing-up-for-a-new-github-account
   - A basic account is sufficient. Note that all NorESM repositories are public by default.
2. Fork NorESM and/or a NorESM model component to your own account
3. Create an issue in the main repository describing the changes you want to make
   - Mainly used for discussions on severe bugs or feature changes, not so much for minor changes (e.g. documentation, small config changes)
4. Make changes in your fork repository
   - To minimize risk of code conflicts, do not make changes directly in branches that duplicate the main repository, but create “throw away” branches for your changes
5. Create a pull request to the main repository
6. Keep things in sync:
   - Remove your “throw away” branches after merging
   - Sync your fork with the main repository

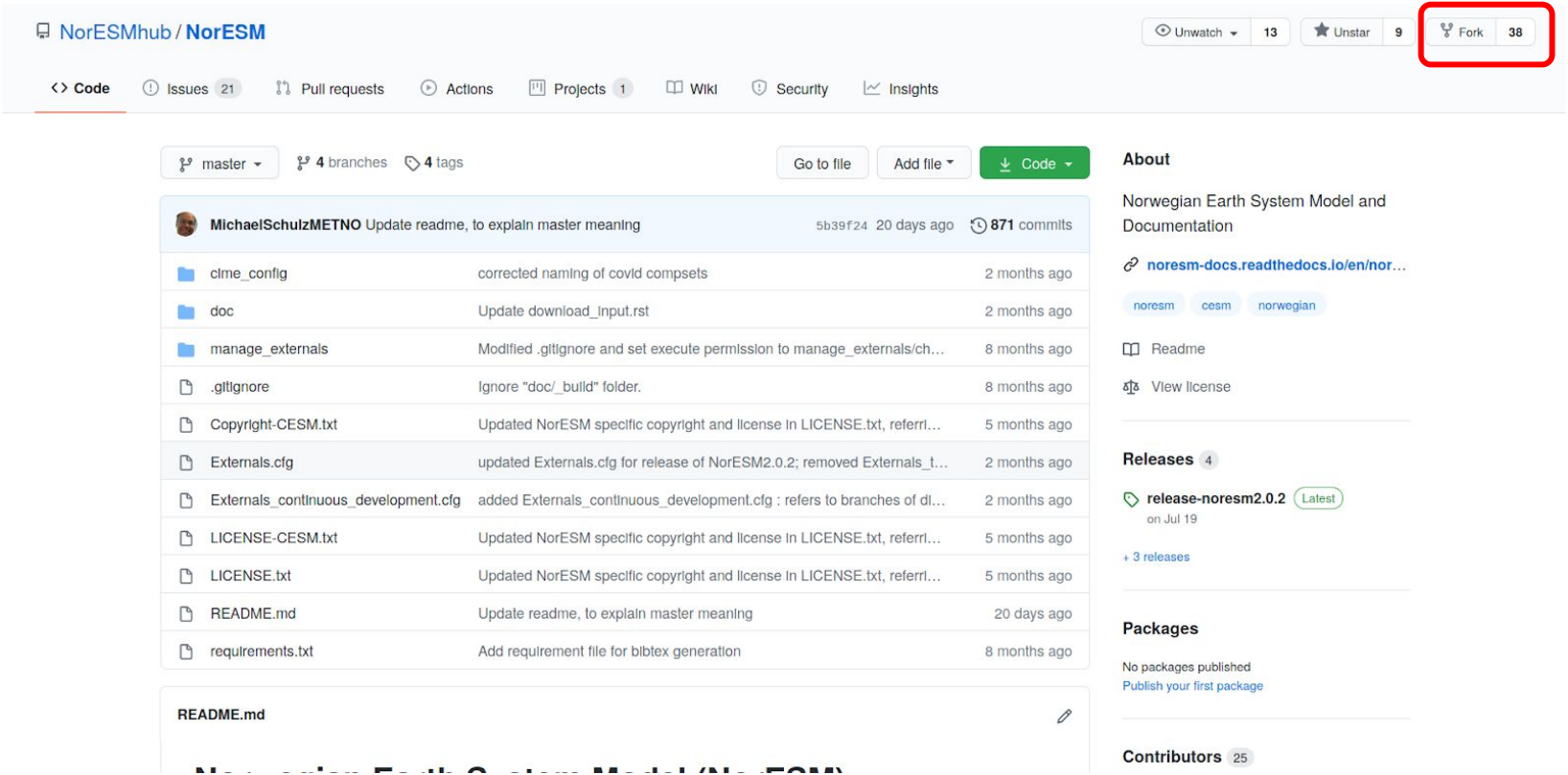
NorESM git repositories



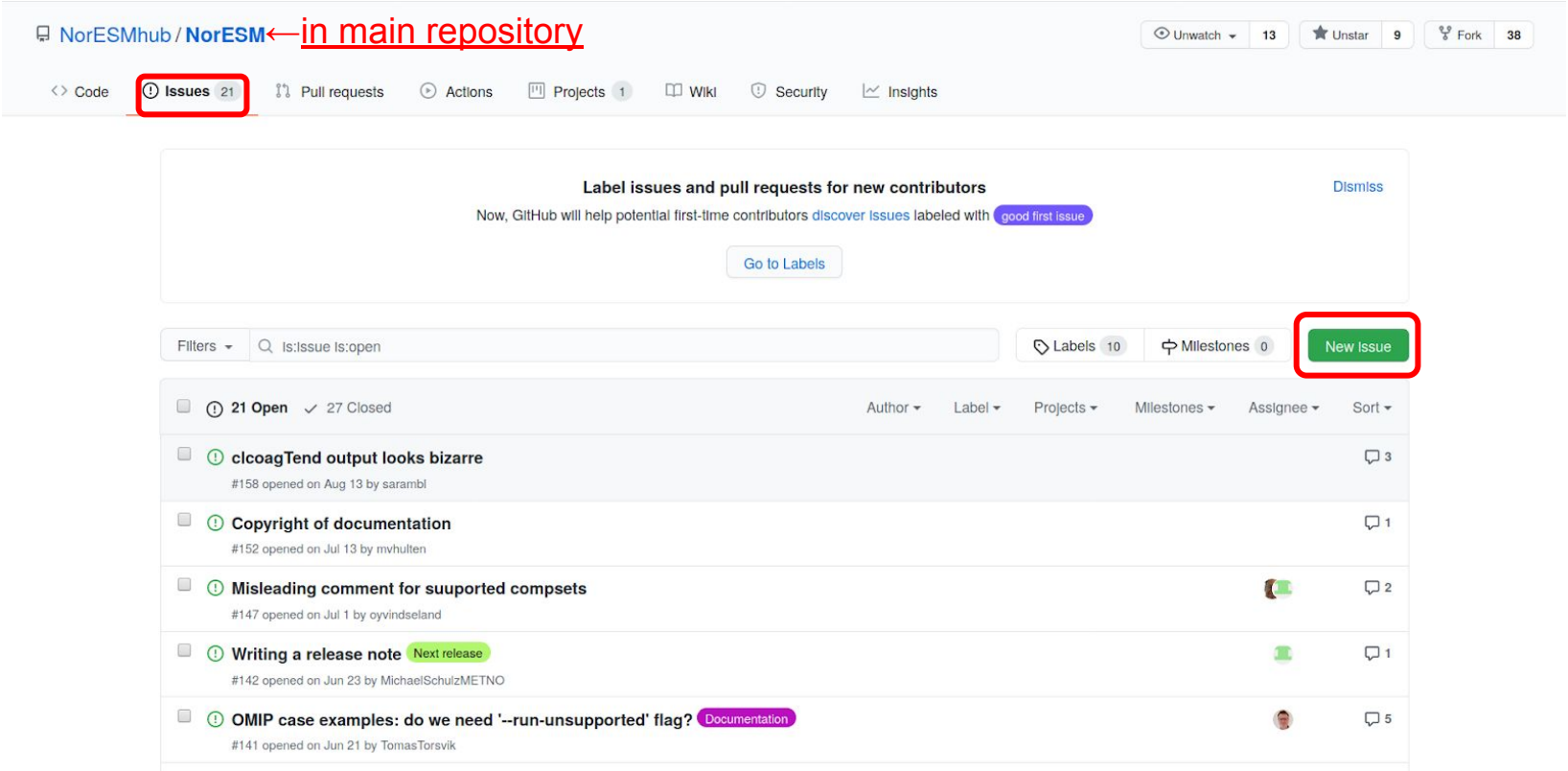
Repository in black are forked from CESM

Fork repository

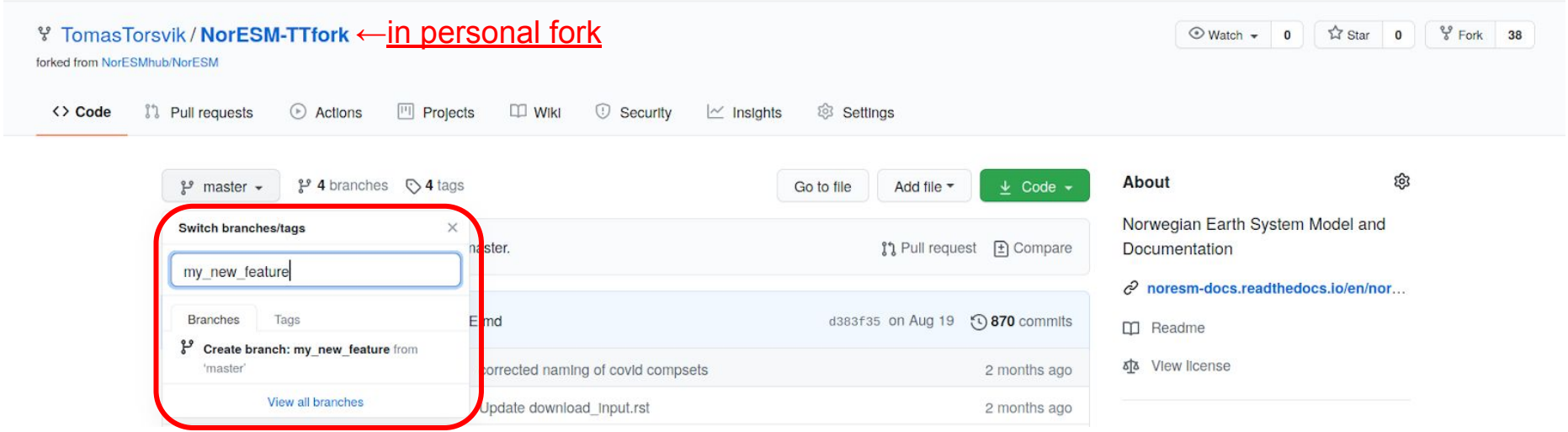
Fork NorESM from gitHub



Create an issue : discussion forum for code changes

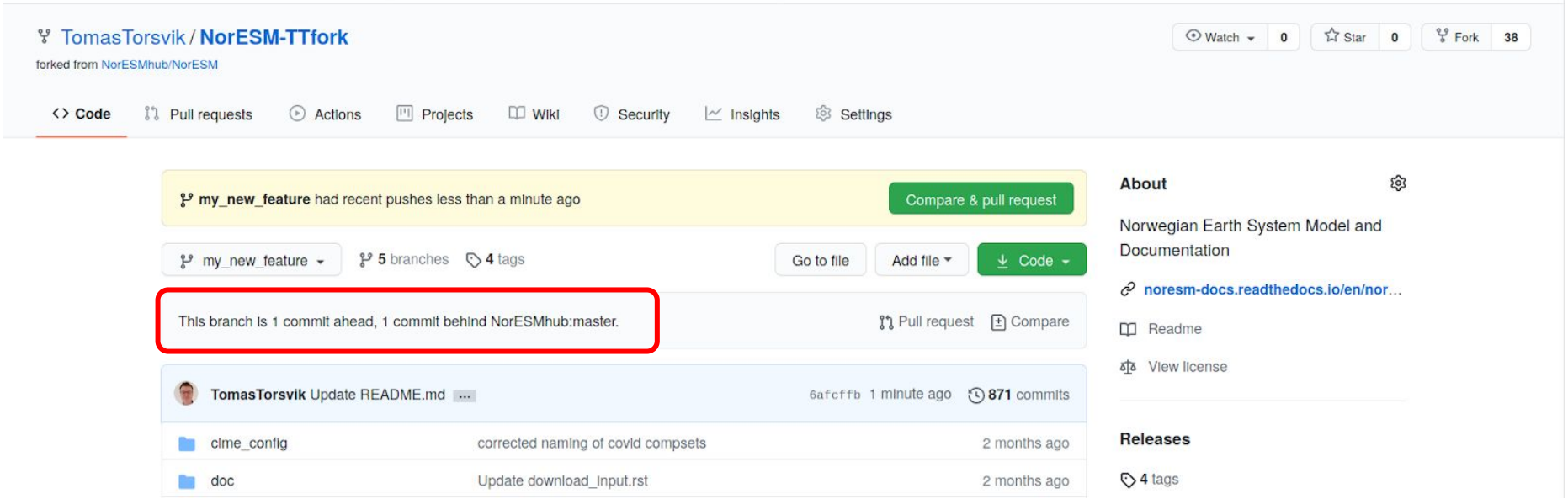


Create a fork : feature branch (highly recommended)

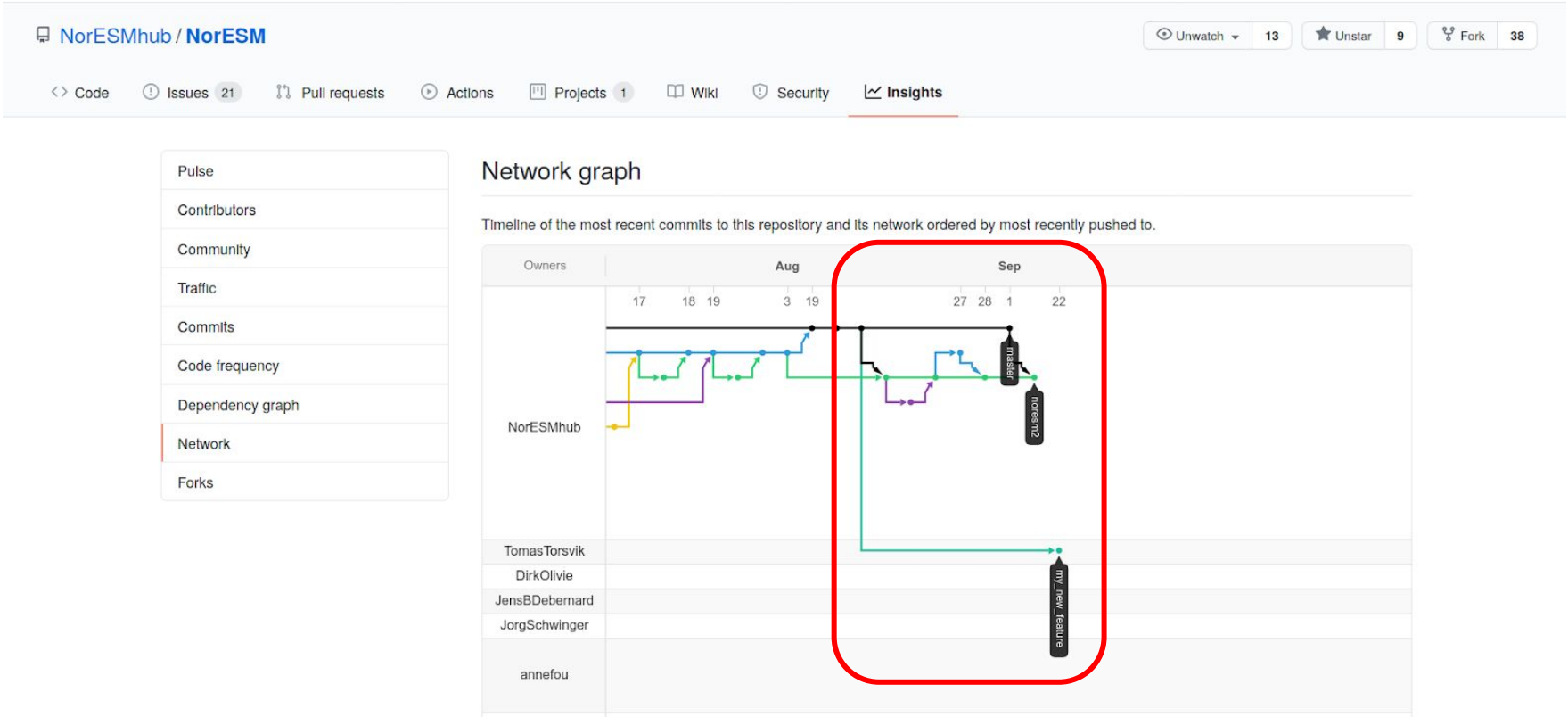


- **Create a new feature branch before making any changes!**
  - Allows updating of root branch (e.g. “master”) without interfering with your own work
- Apply your changes in the feature branch, either directly in the gitHub fork or your local clone of the fork

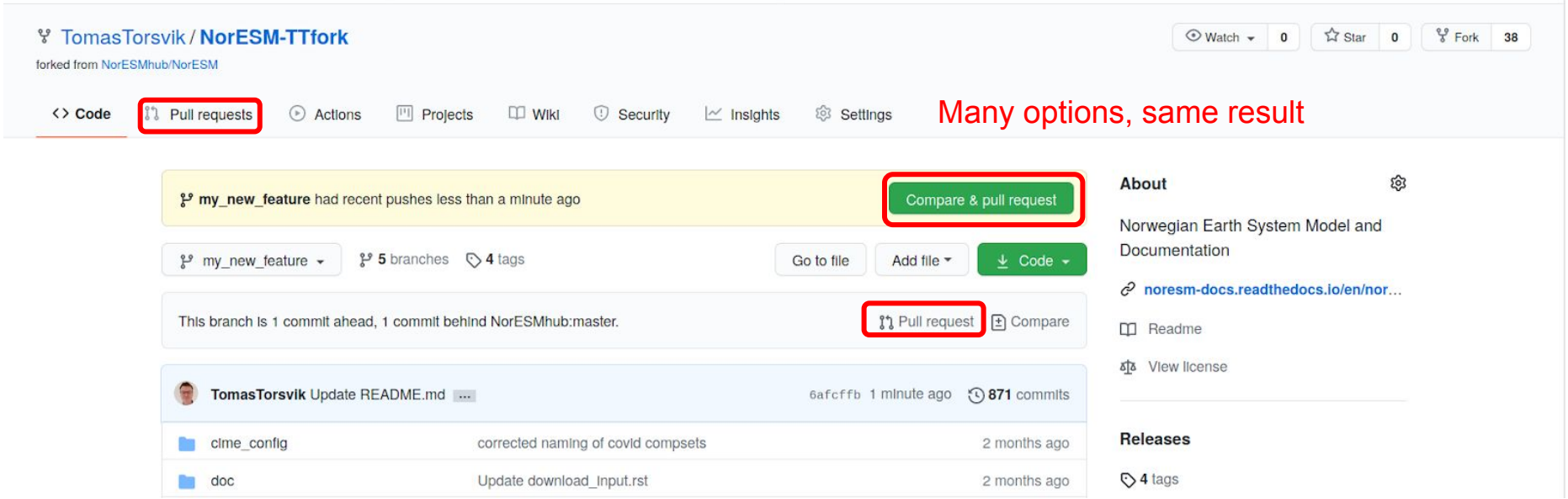
Review changes : from fork



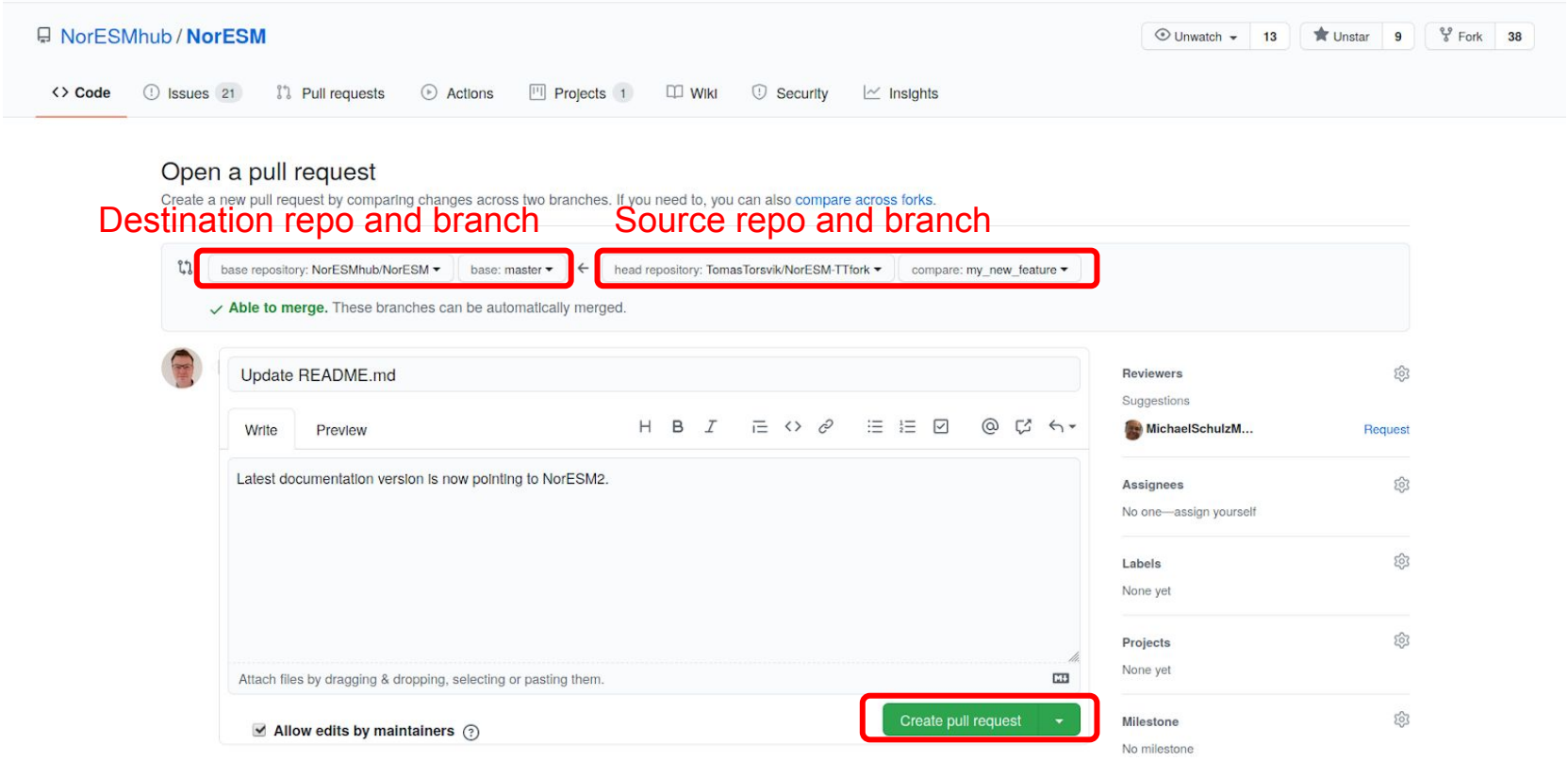
Review changes : from “Network”



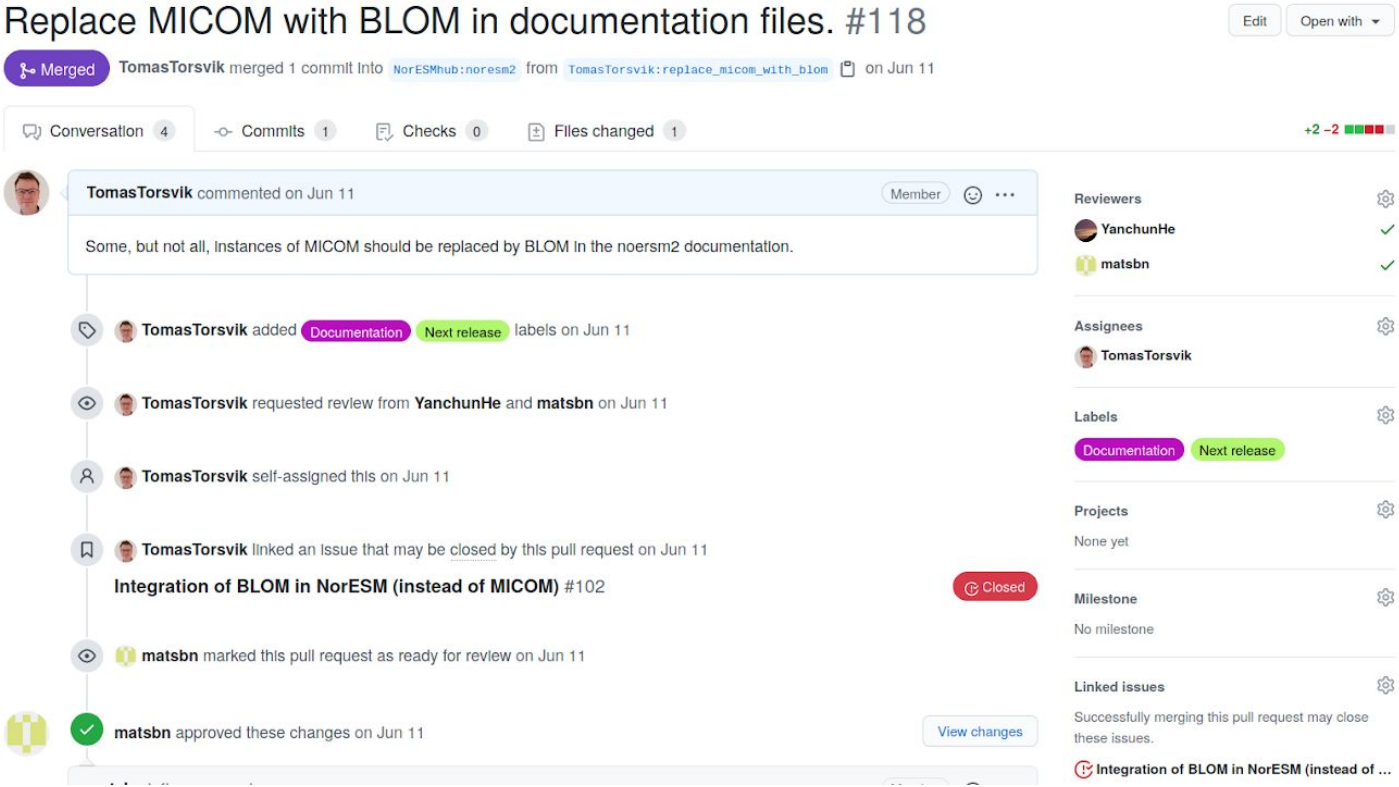
Create a pull request



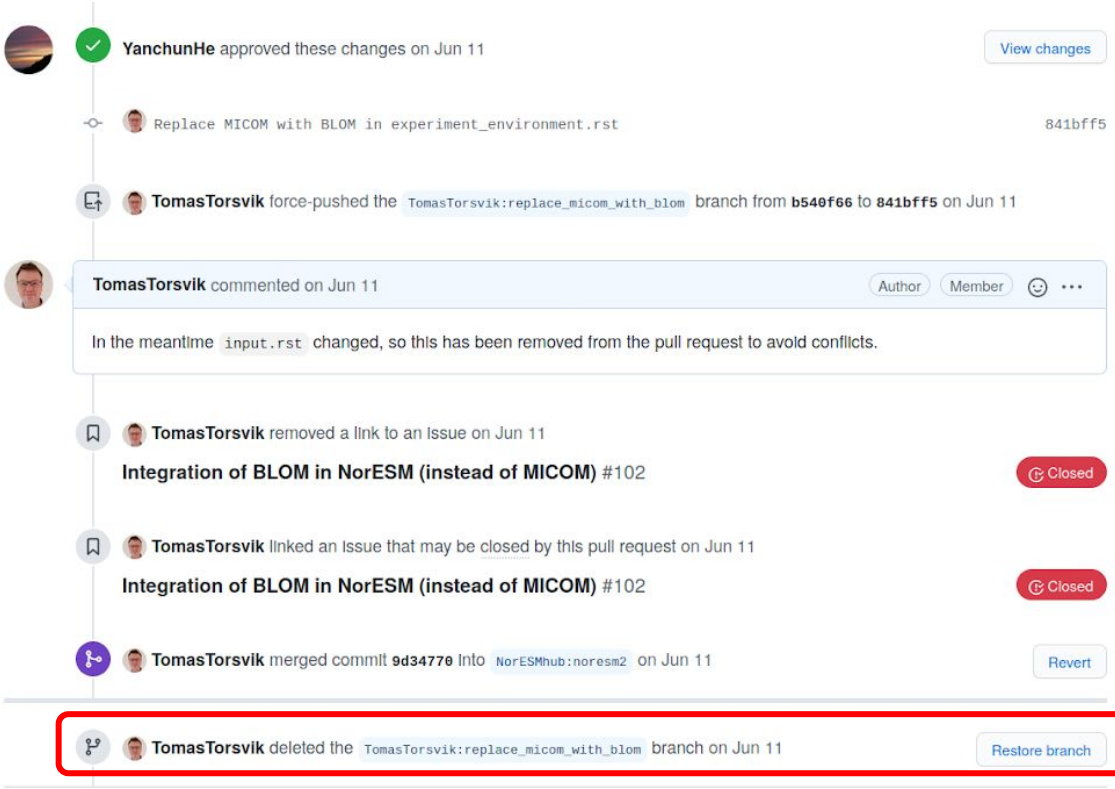
Create a pull request



Pull request : completed example

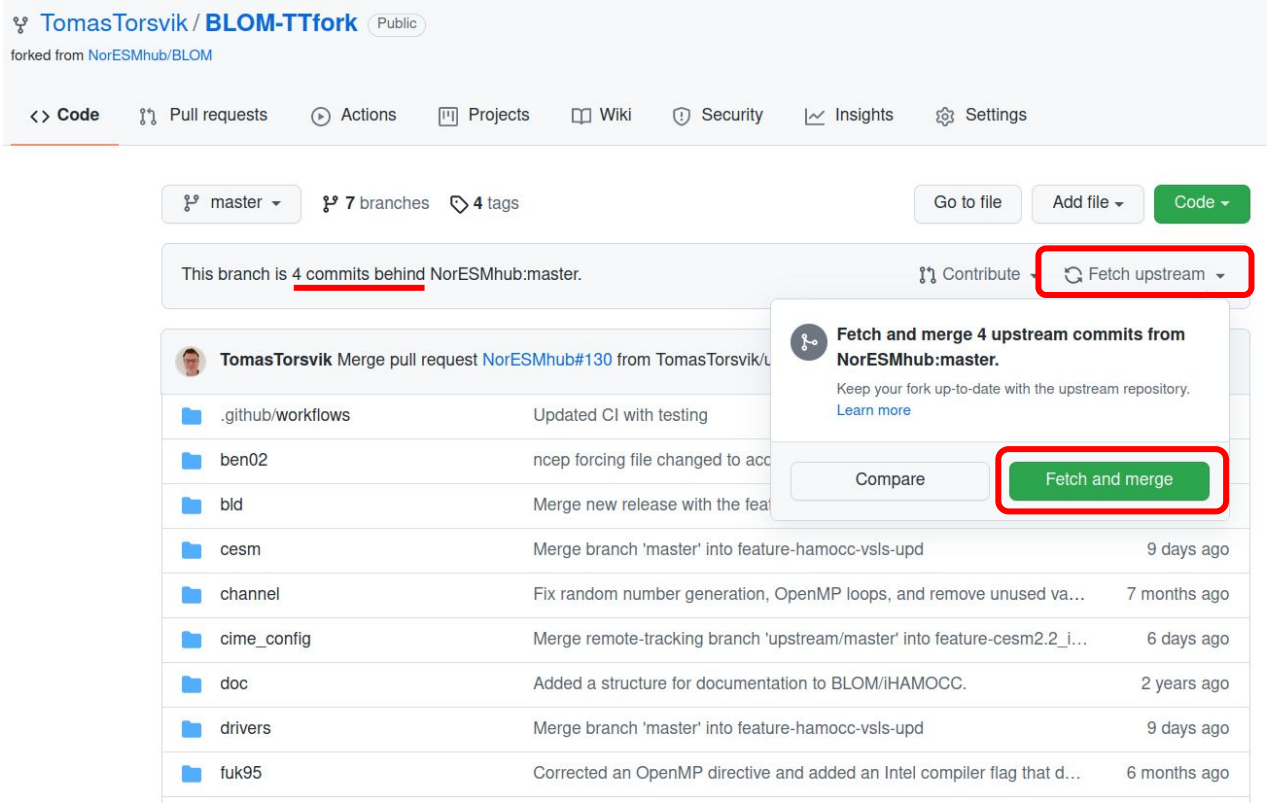


Pull request : completed example



Delete “throw away” branch
In personal fork

Keep fork in sync with main repository



The “Fetch and merge” option will bring the “master” branch in sync with the main repository ...

-- without conflicts or additional merge commits --

... if you have not made any changes in the “master” branch for your own fork.

Who to contact for each component?

- Atmosphere (CAM) – Steve Goldhaber (MET), Dirk Olivie (MET), Øyvind Seland (MET), Ada Gjermundsen (UiO)
- Land (CLM) – Matvey Debolskiy (UiO), Rosie Fisher (CICERO), Kjetil Aas (CICERO)
- Ocean physics (BLOM) – Mats Bentsen (NORCE), Tomas Torsvik (UiB)
- Ocean biogeochemistry (iHAMOCC) – Jörg Schwinger (NORCE), Jöran Maerz (UiB)
- Sea ice (CICE) – Jens Debernard (MET)
- Land ice (CISM) – Heiko Goelzer (NORCE), Michele Petrini (NORCE)
- River (MOSART) – Mariana Vertenstein (MET) (No dedicated work group)
- System coupler (MCT, NUOPC) – Mariana Vertenstein (MET)

Coordinating model development

The NorESM “tag team” is responsible for coordinating the work for creating new NorESM tags and code releases. Currently the team consists of Mats Bentsen (NORCE), Steve Goldhaber (MET), Mariana Vertenstein (MET), Matvey Debolskiy (UiO), Alok Gupta (NORCE) and Tomas Torsvik (UiB).

- Contact someone in the tag team if you plan to contribute code to the NorESM system, so we can advice how to do pull requests and merging.

Engagement with NorESM community

- Development meetings every Thursday @ 9:00 am via zoom (open for everyone)
  - Currently focused on NorESM3 development
- NorESM mail list (ines2-interim-all@met.no), contact Michael Schultz (MET) to get emails from this list
- Annual NorESM user workshop
- Events are announced through email list and on https://www.noresm.org/

Thanks for joining the NorESM workshop 2026!