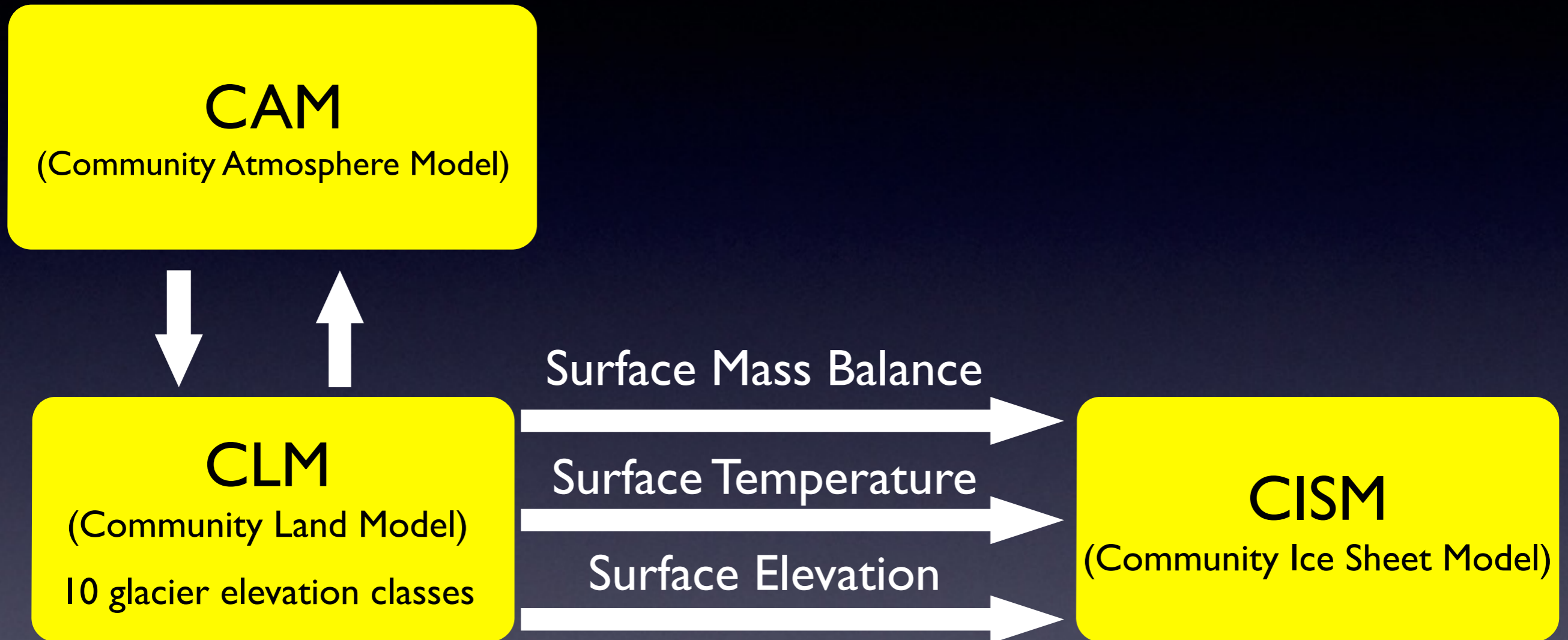


Tutorial: Ice sheet modeling in CESM

Bill Sacks

Land Ice Working Group Software Engineering Liaison
NCAR

CISM in CESM



Compsets with active ice sheet

- BG (fully coupled)
- FG (CAM, CLM & CISM)
- IG (CLM & CISM)
- TG (CISM only)

Limited number of supported resolutions:

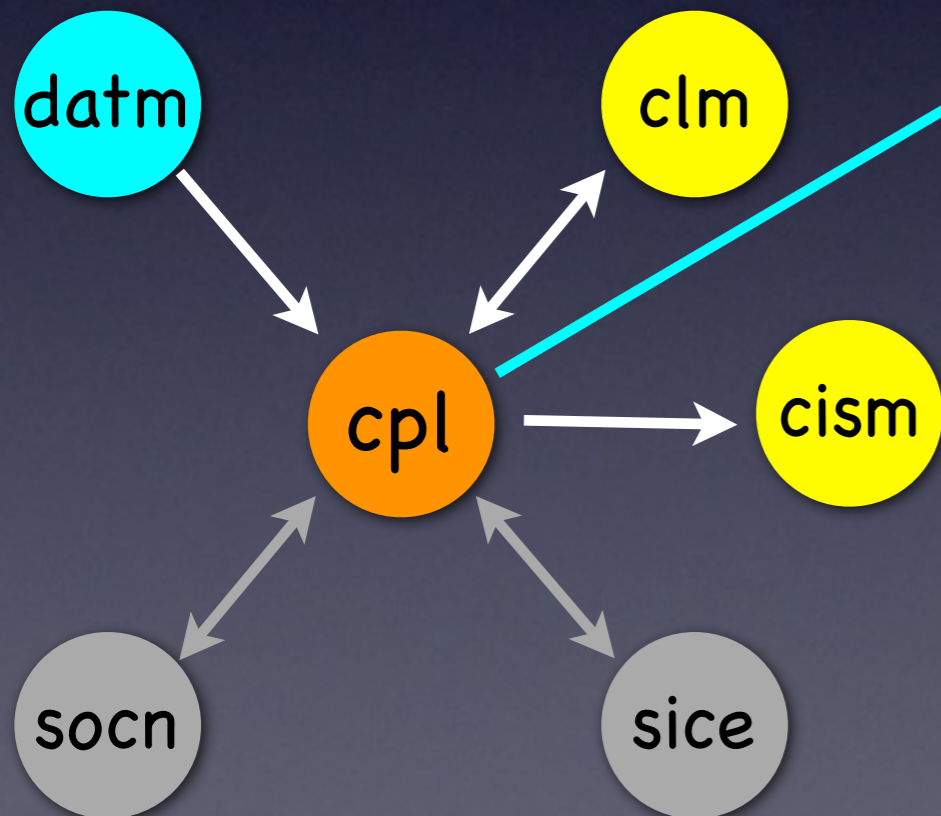
- 1-degree finite volume (f09)
- 2-degree finite volume (f19)
- 3.75-degree spectral (T31)

TG Compset

Key: **active** / **data** / stub model

First: Run IG
(or FG or BG)

cpl history
(tsrf, topo,
qice)



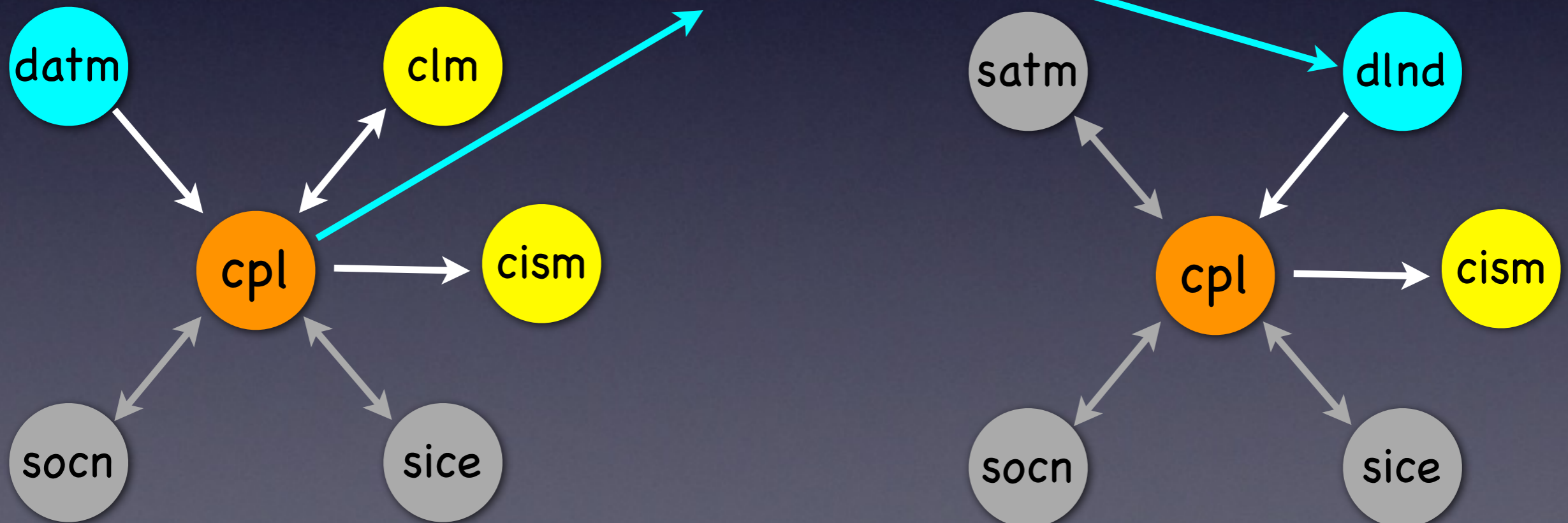
TG Compset

Key: **active** / **data** / stub model

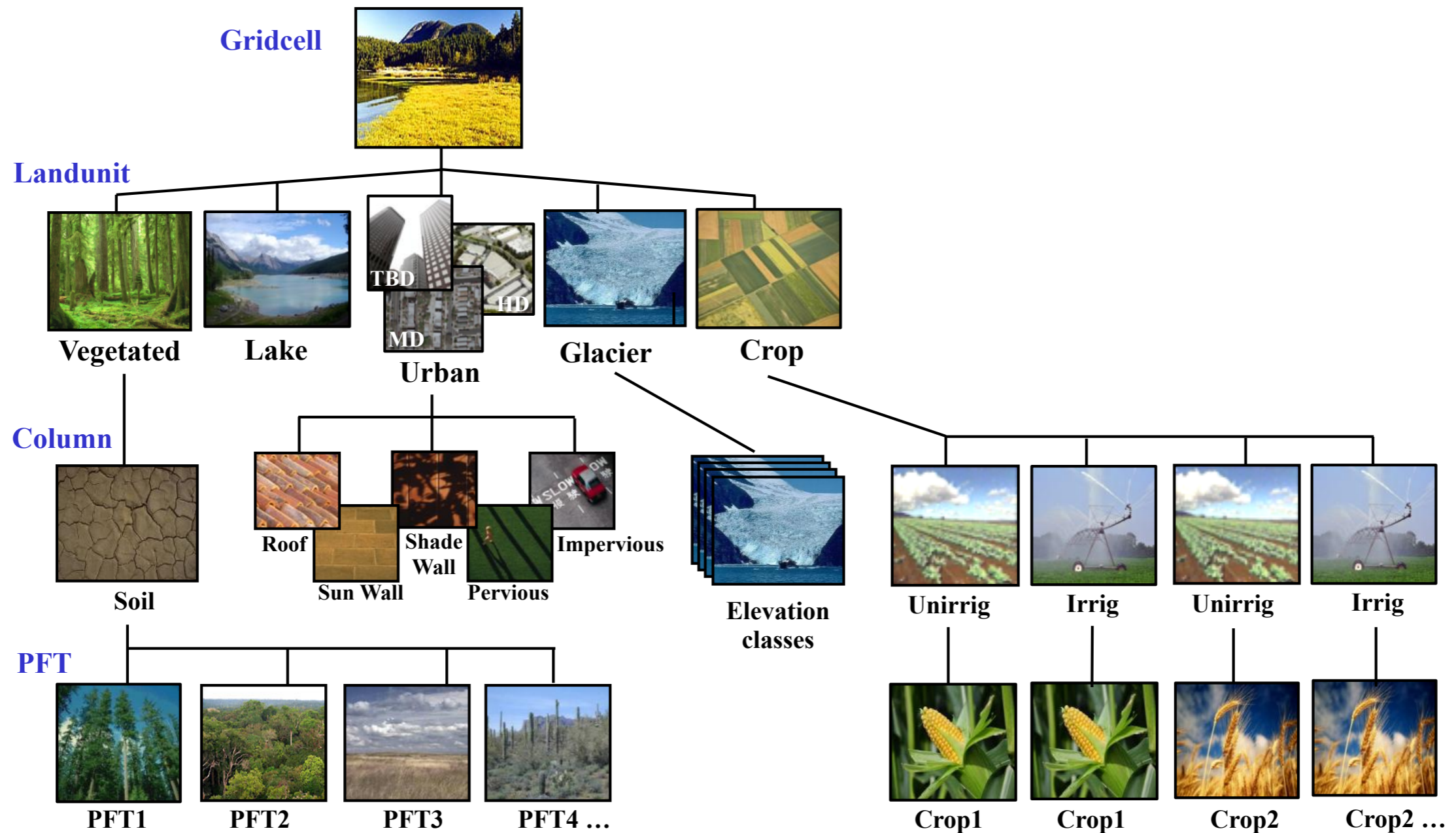
First: Run IG
(or FG or BG)

cpl history
(tsrf, topo,
qice)

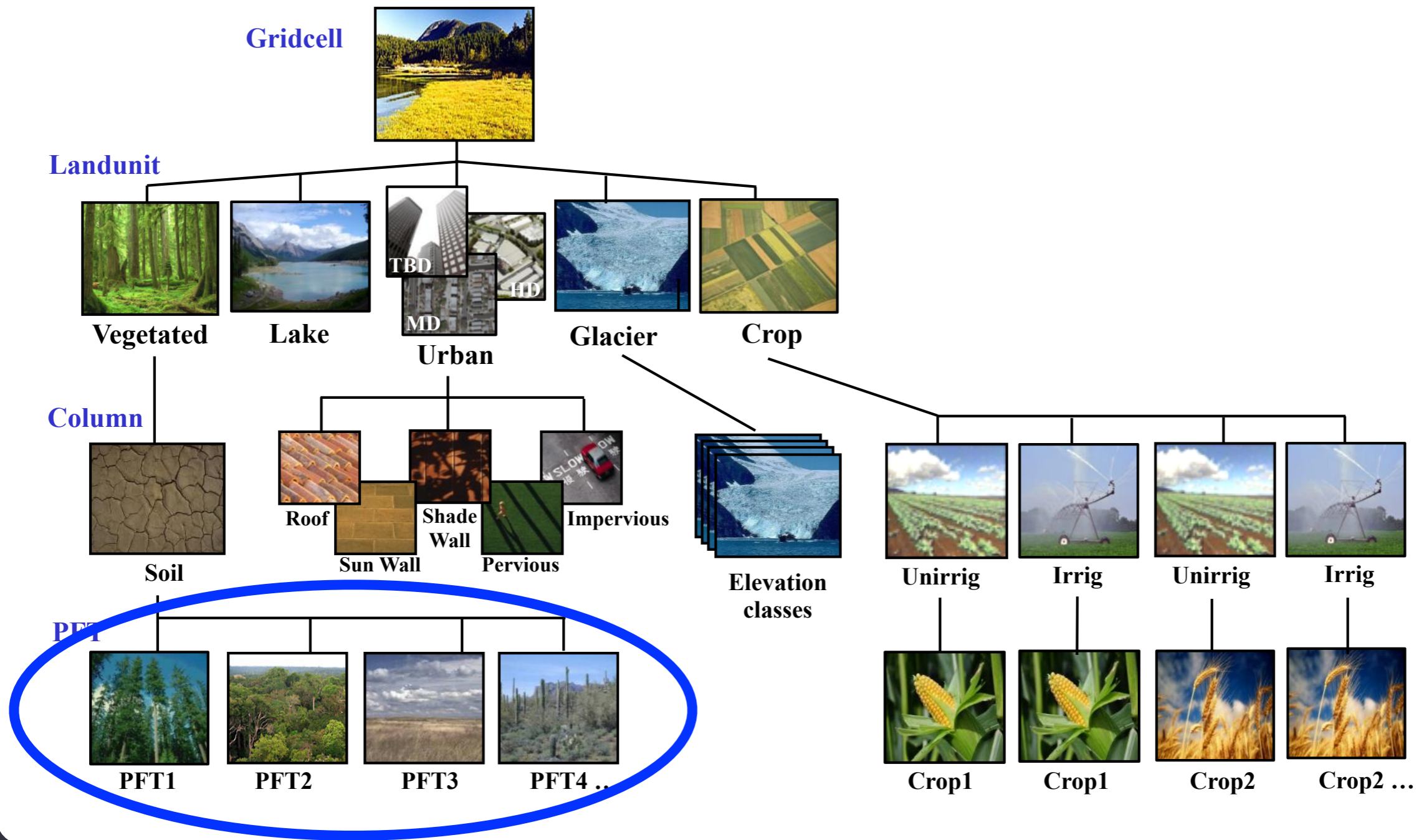
Next: Run TG



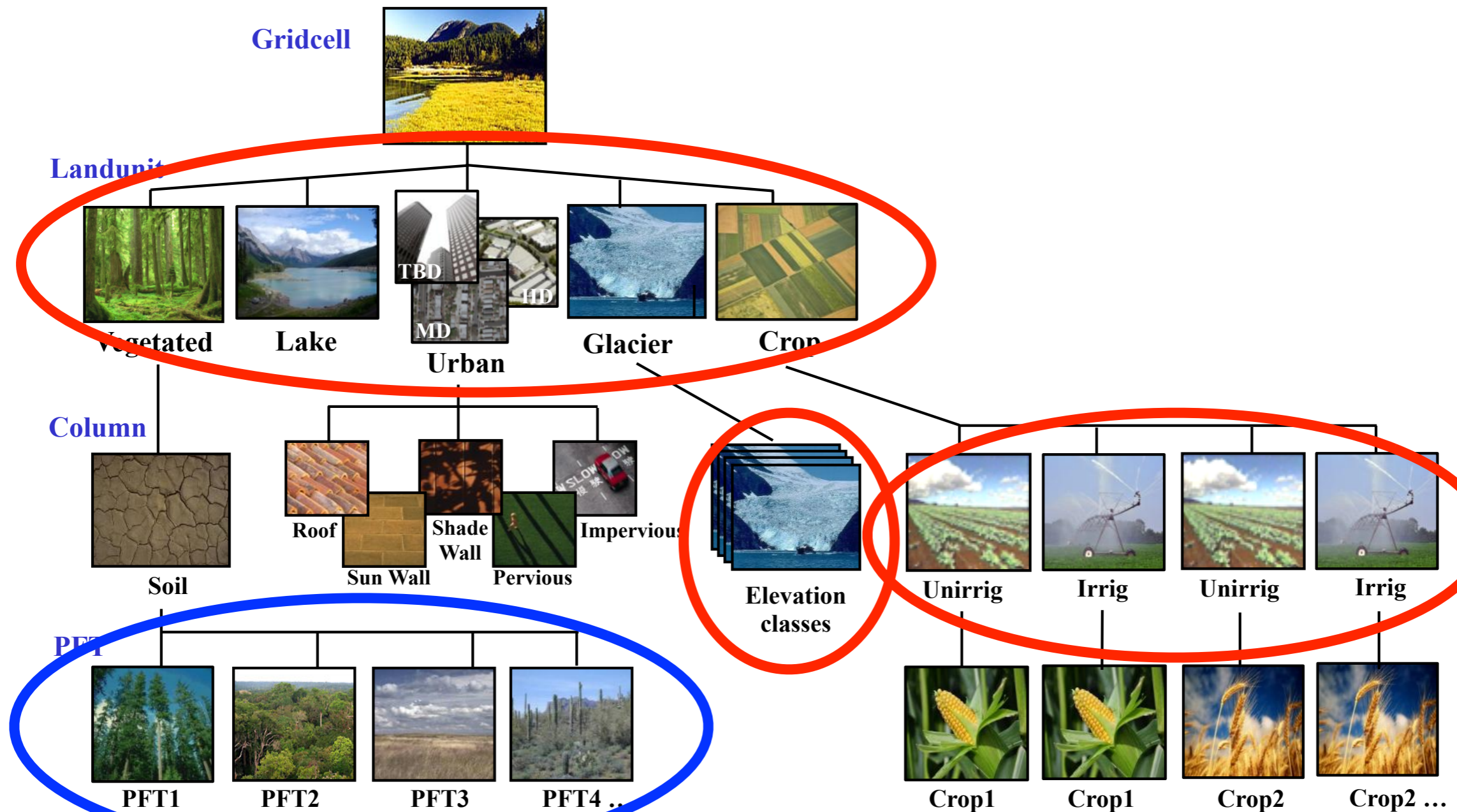
CESM 1.3: Dynamic Landunits in CLM



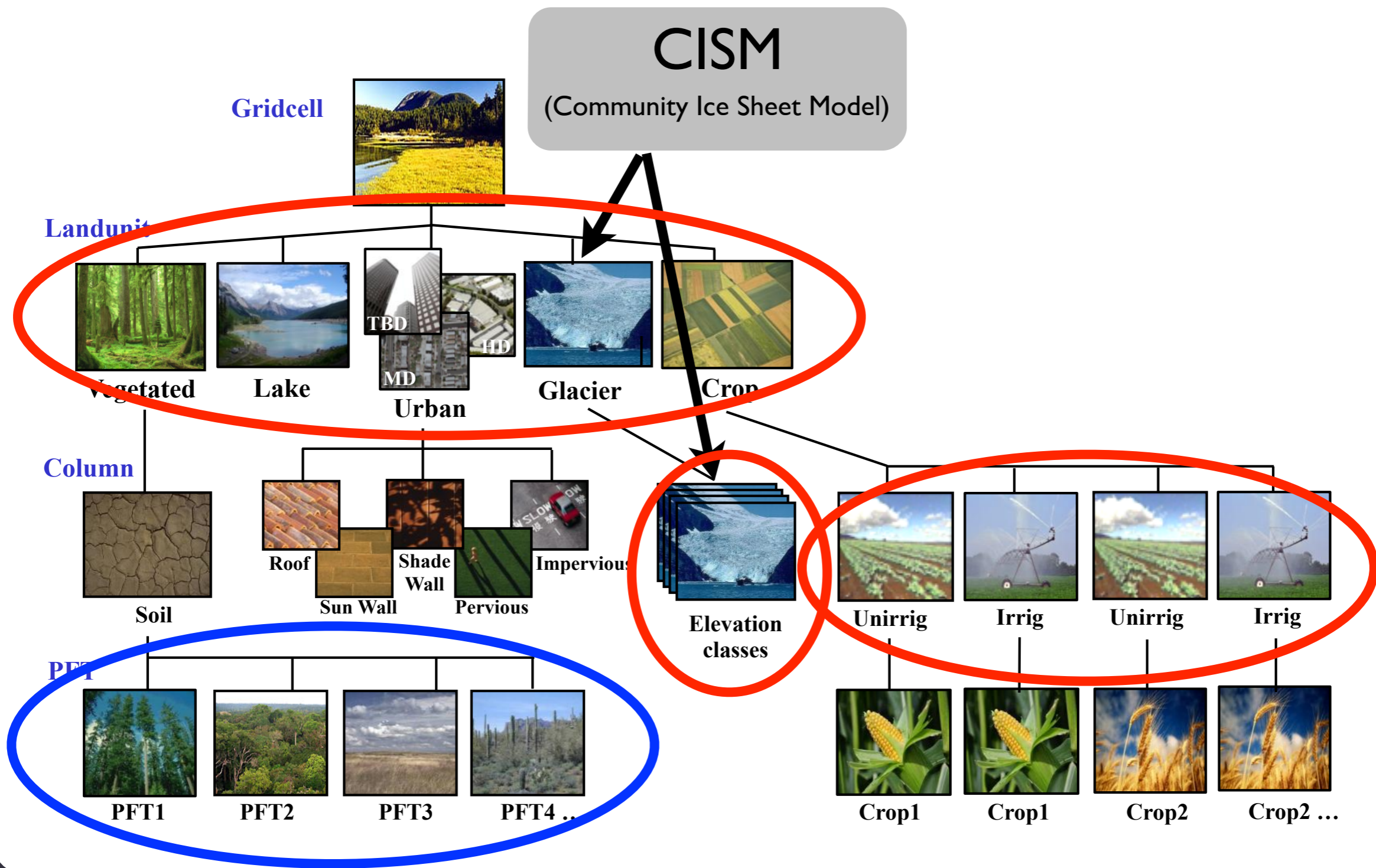
CESM 1.3: Dynamic Landunits in CLM



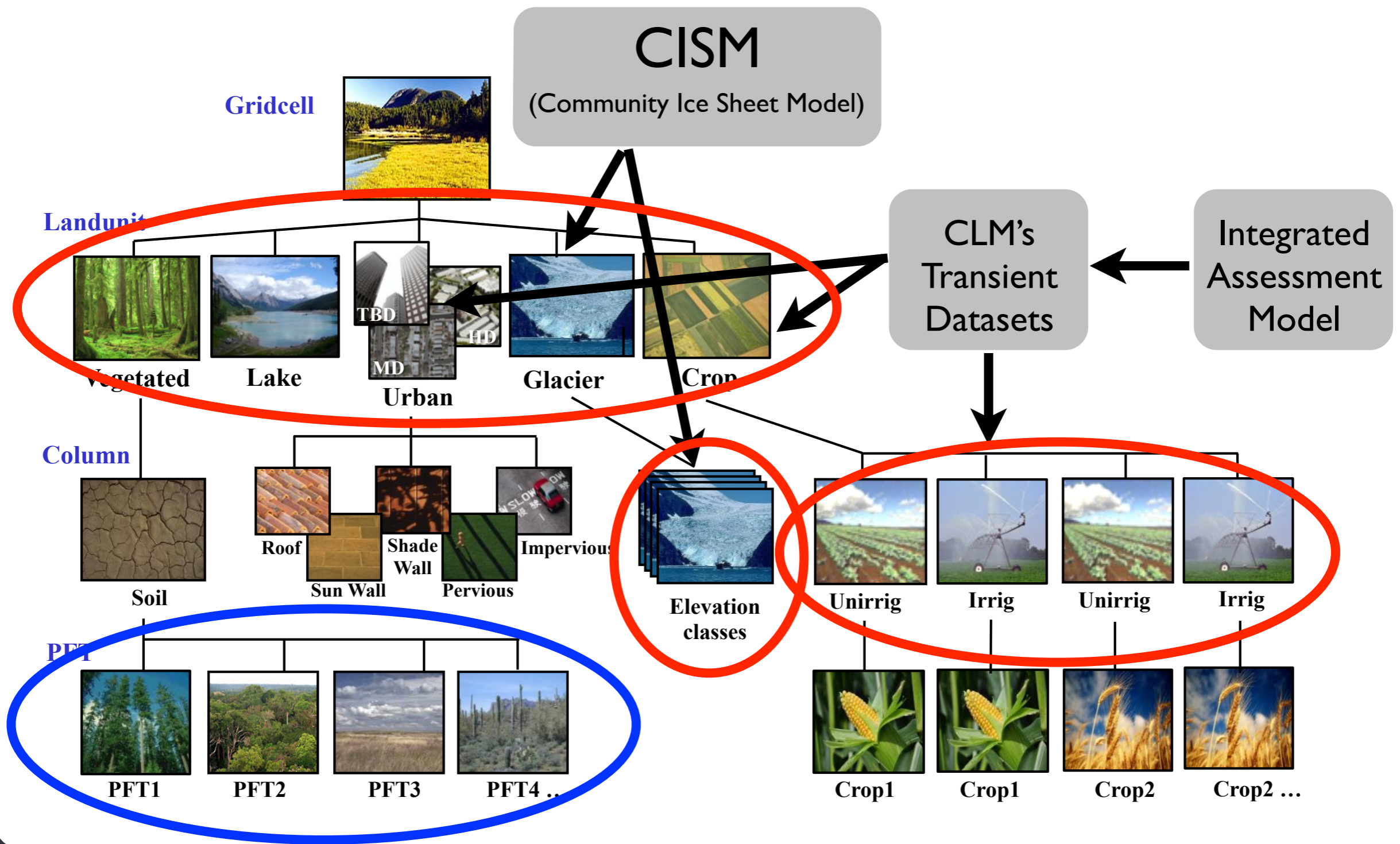
CESM 1.3: Dynamic Landunits in CLM



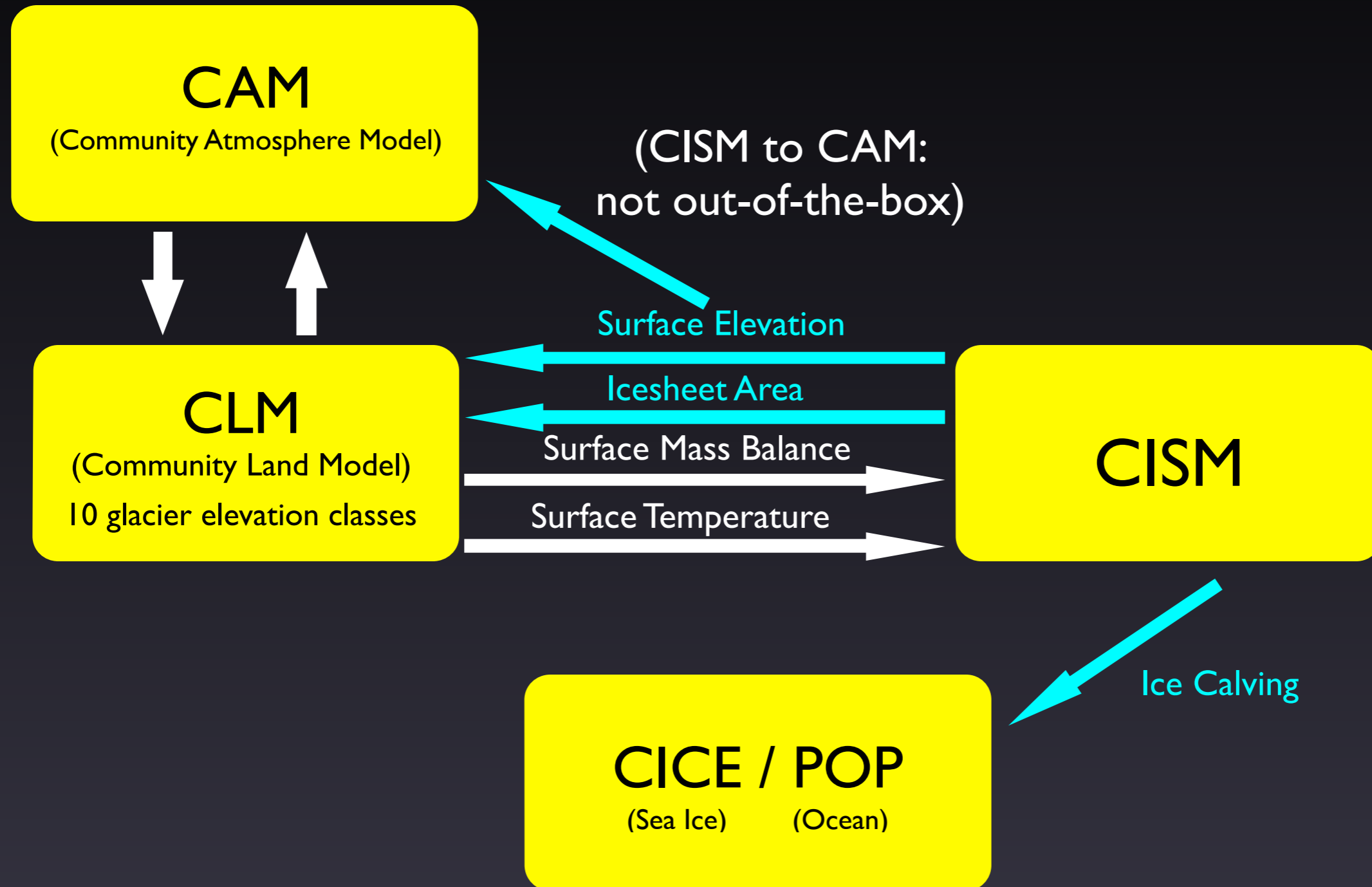
CESM 1.3: Dynamic Landunits in CLM



CESM 1.3: Dynamic Landunits in CLM



CESM 1.3: Other Feedbacks from CISM

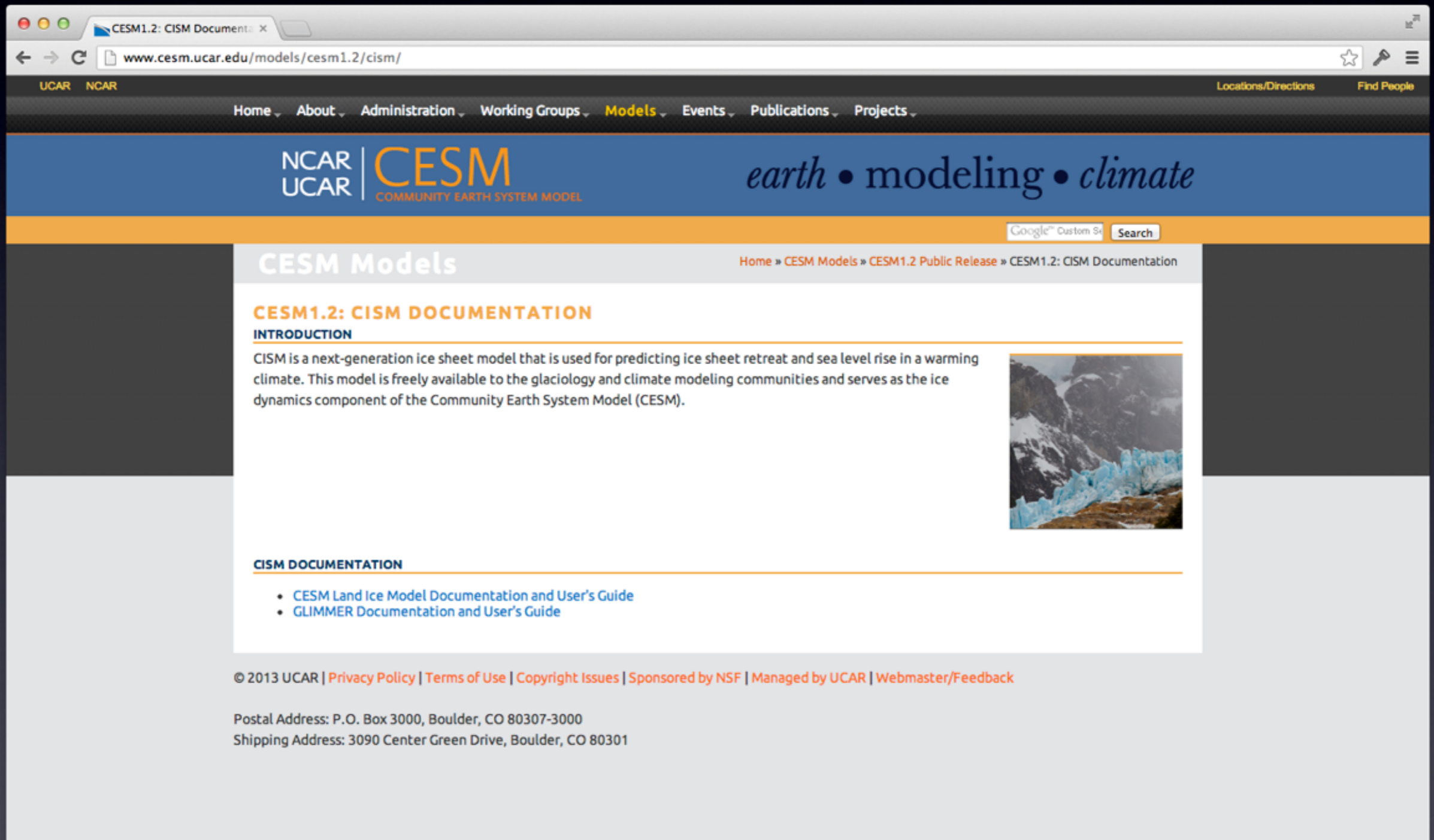


Hands-on overview: CESM IG run

- IG compset
- Simple CLM source code modification to simulate global warming / cooling over ice sheets
- Look at how this affects the Greenland surface mass balance over a few years

For more information

<http://www.cesm.ucar.edu/models/cesm1.2/cism/>



The image shows a screenshot of a web browser displaying the CESM1.2 CISM Documentation page. The browser's address bar shows the URL www.cesm.ucar.edu/models/cesm1.2/cism/. The page features a navigation menu with links for Home, About, Administration, Working Groups, Models, Events, Publications, and Projects. The main header includes the NCAR UCAR logo, the CESM logo (Community Earth System Model), and the tagline "earth • modeling • climate". A search bar is located on the right side of the header. The main content area is titled "CESM Models" and includes a breadcrumb trail: Home » CESM Models » CESM1.2 Public Release » CESM1.2: CISM Documentation. The primary heading is "CESM1.2: CISM DOCUMENTATION" followed by an "INTRODUCTION" section. The introduction text states: "CISM is a next-generation ice sheet model that is used for predicting ice sheet retreat and sea level rise in a warming climate. This model is freely available to the glaciology and climate modeling communities and serves as the ice dynamics component of the Community Earth System Model (CESM)." To the right of this text is a photograph of a large glacier. Below the introduction is a "CISM DOCUMENTATION" section with a bulleted list of links: "CESM Land Ice Model Documentation and User's Guide" and "GLIMMER Documentation and User's Guide". The footer contains copyright information for 2013 UCAR, links to Privacy Policy, Terms of Use, Copyright Issues, and a note that the site is sponsored by NSF and managed by UCAR. It also provides postal and shipping addresses in Boulder, CO.

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CESM1.2: CISM DOCUMENTATION

INTRODUCTION

CISM is a next-generation ice sheet model that is used for predicting ice sheet retreat and sea level rise in a warming climate. This model is freely available to the glaciology and climate modeling communities and serves as the ice dynamics component of the Community Earth System Model (CESM).



CISM DOCUMENTATION

- [CESM Land Ice Model Documentation and User's Guide](#)
- [GLIMMER Documentation and User's Guide](#)

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Postal Address: P.O. Box 3000, Boulder, CO 80307-3000
Shipping Address: 3090 Center Green Drive, Boulder, CO 80301