# Challenges in linking ecological data to vegetation models


Land surface Models (such as FATES) try to capture how energy, water and carbon flow through a system, and how these components interact. But we need good field based data to parameterize these vegetation components of these models and test them

There are exciting possibilities for asking questions related to how physiological or community shifts in parameters may influence model outcomes, including:

- new plant functional types, or mosses/lichens
- drought in coastal heathlands
- broader climate change impacts across alpine gradients
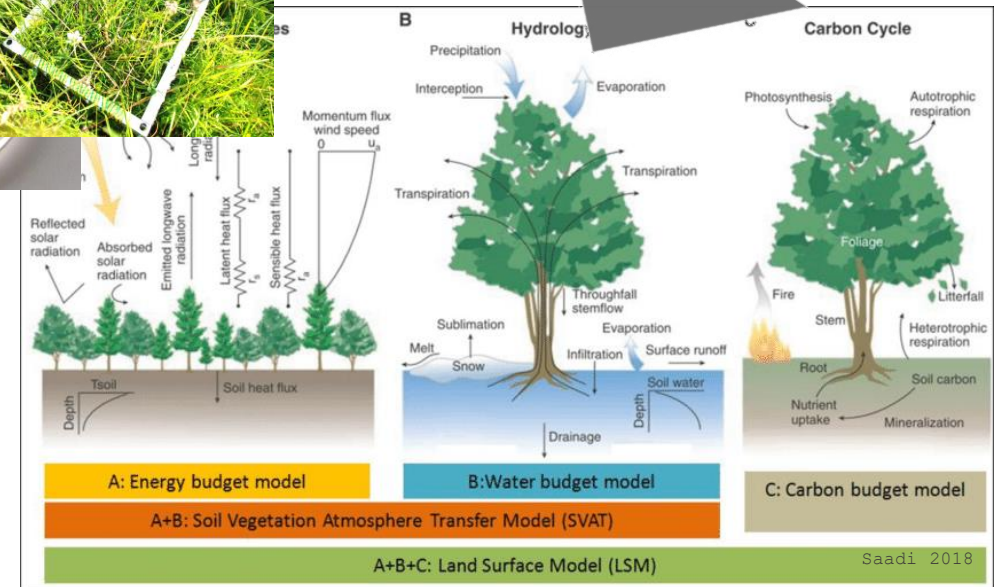
Educational opportunities & easier user interfaces for linking ecologists and modelers
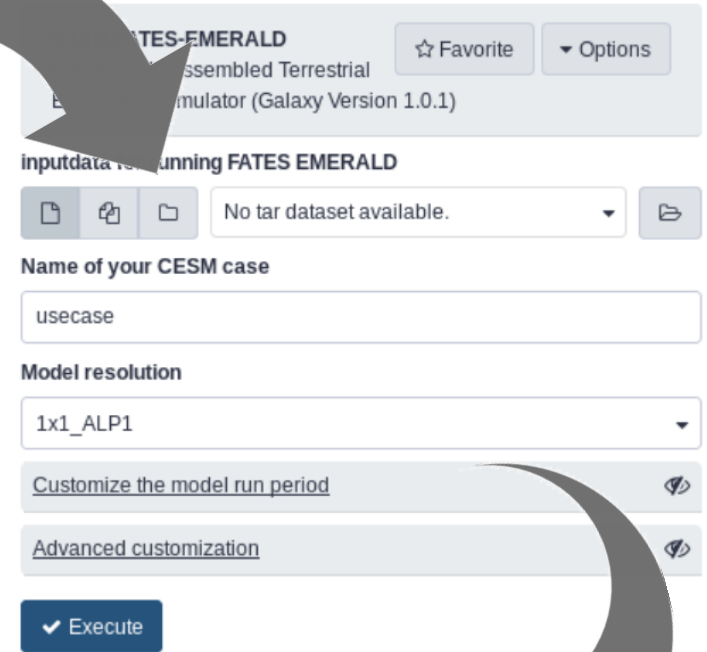

We also need to increase collaboration and communication between ecologists and the land surface model community. Can developing graphical user interfaces, and educational tools help facilitate this?

We've been developing a new GALAXY based tool to help simplify the process of getting ecological data into FATES and also making it easier for ecologists to run their own models.

Can we turn this into an educational activity for undergraduates?
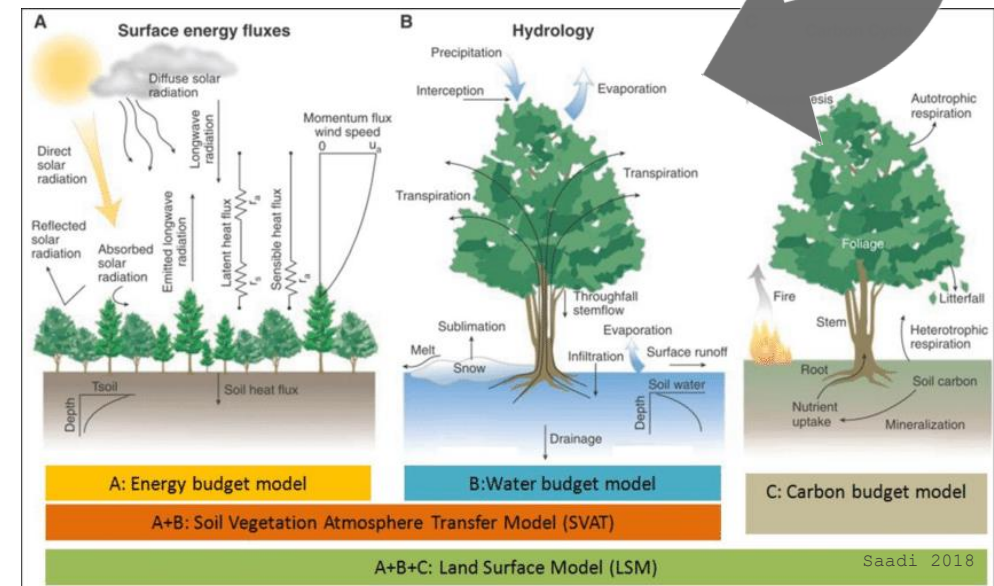
Harnessing the reflectance properties of vegetation
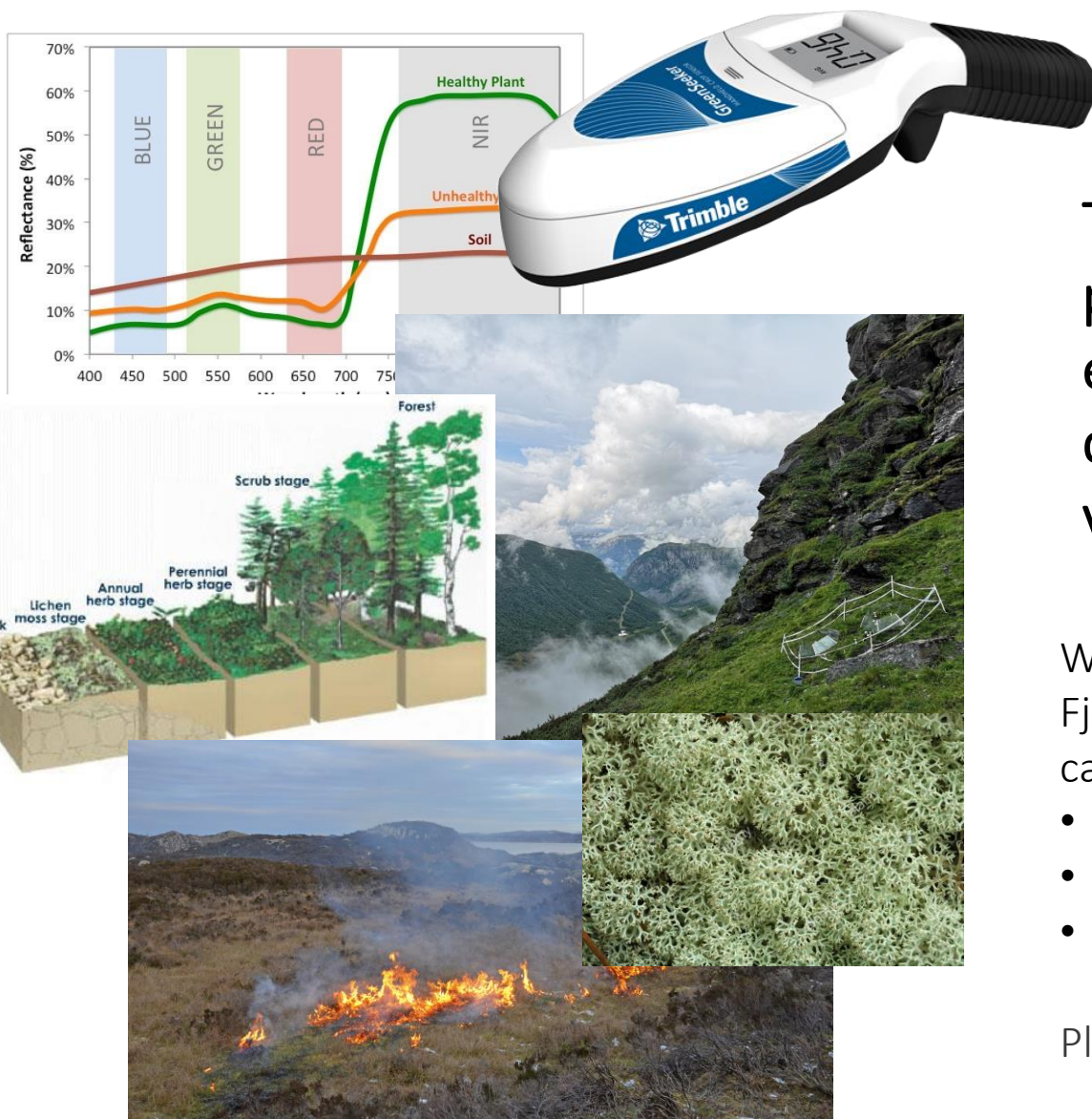
The reflectance properties of vegetation, the percentage of light reflected throughout the electromagnetic spectrum, can provide non-destructive insights into a broad range of vegetation characteristics

With the wide range of experiments underway in the Between the Fjords research group, there are opportunities to looks at leaf and canopy level reflectance (NDVI) across experimental systems including:
- drought in coastal heathlands
- responses along elevation gradients
- or how alpine species respond to experimental warming

Plus opportunities for meta-analysis or systematic reviews!