

# Signal Processing Working Group

## Participants

Alo Laas, Eleanor Jennings, Jen Klug, Don Pierson, Kevin Rose, Jim Rusak,  
Robyn Smyth, Jenny Brentrup, Bom Chui, Peter Isles, Marike Frassl,  
Yannick Huot, Iestyn Woolway, Gerardo Perillo, Alice Parkes

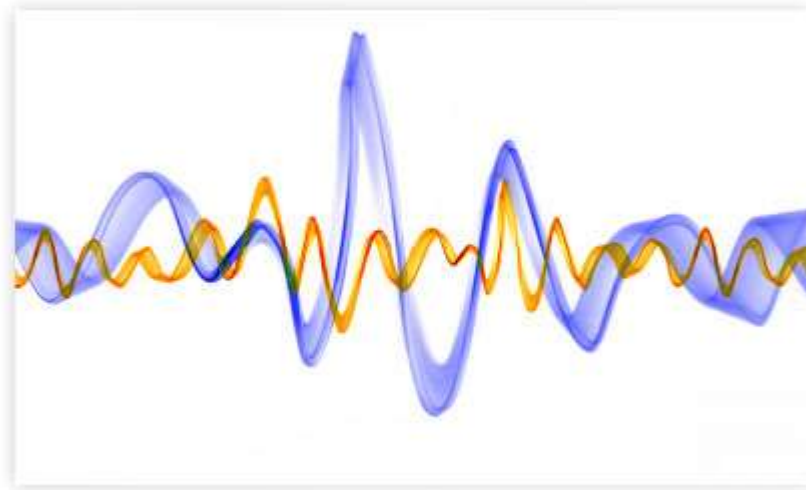
Peter Staehr, Lesley, Bruce Hargreaves, Craig Williamson

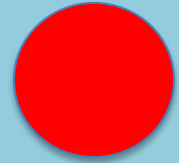
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# Mission statement

Everything depends on the signal





# Reviewed two papers near completion

- **Wind and trophic status explain the temporal and spatial variability of chlorophyll in lakes (lead Jim Rusak)**
- **Drivers of variability in chlorophyll fluorescence in lakes across climatic and trophic gradients (lead Eleanor Jennings)**

# New projects

## Linking high frequency estimates of ecosystem metabolism and chlorophyll fluorescence

1. How metabolism estimates are influenced by growth rates of phytoplankton using high frequency fluorescence data. Student from David da Motta Marques to visit Ireland for 9 months from August 2015. Proposing that this will be her topic. Main research question to be finalised. We will circulate an email to previous data providers and a new data request.
2. Calculating in-situ growth rates using chl fluorescence data.
3. Analysis of vertical chlorophyll data obtained from profiling buoys – lead Jennie Brentrup



# Estimating in-situ growth rates from buoy data

Peter Isles

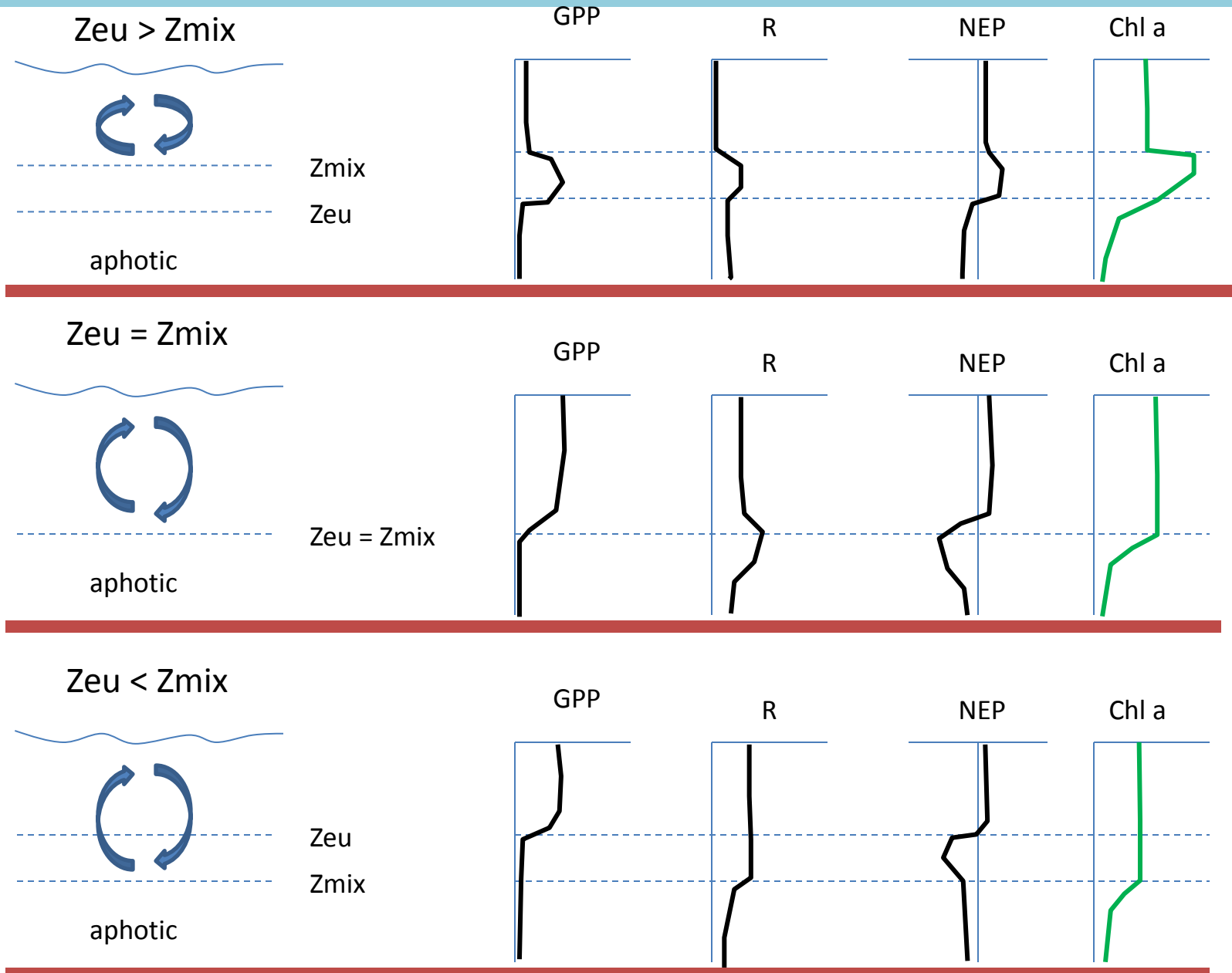
- How best to estimate in-situ growth rates from noisy chl-a fluorescence data?
  - smoothing approaches, reliable signals
- How to validate these estimates?
- How can this improve estimates of bloom drivers from high-frequency data?
  - or ability to correlate bloom dynamics w/ field samples (nutrients, etc.)



# Analysis of Vertical Chl Data Obtained from Profile Buoys

- Use profiling buoy data from 11+ GLEON sites
- What information can high-frequency data from profiling buoys provide that stationary sensors may miss?
- Examine spatial and temporal variability in the chlorophyll maximum
- How do the depth, width, and peak intensity of the chlorophyll maximum (CM) change over time in different lakes?

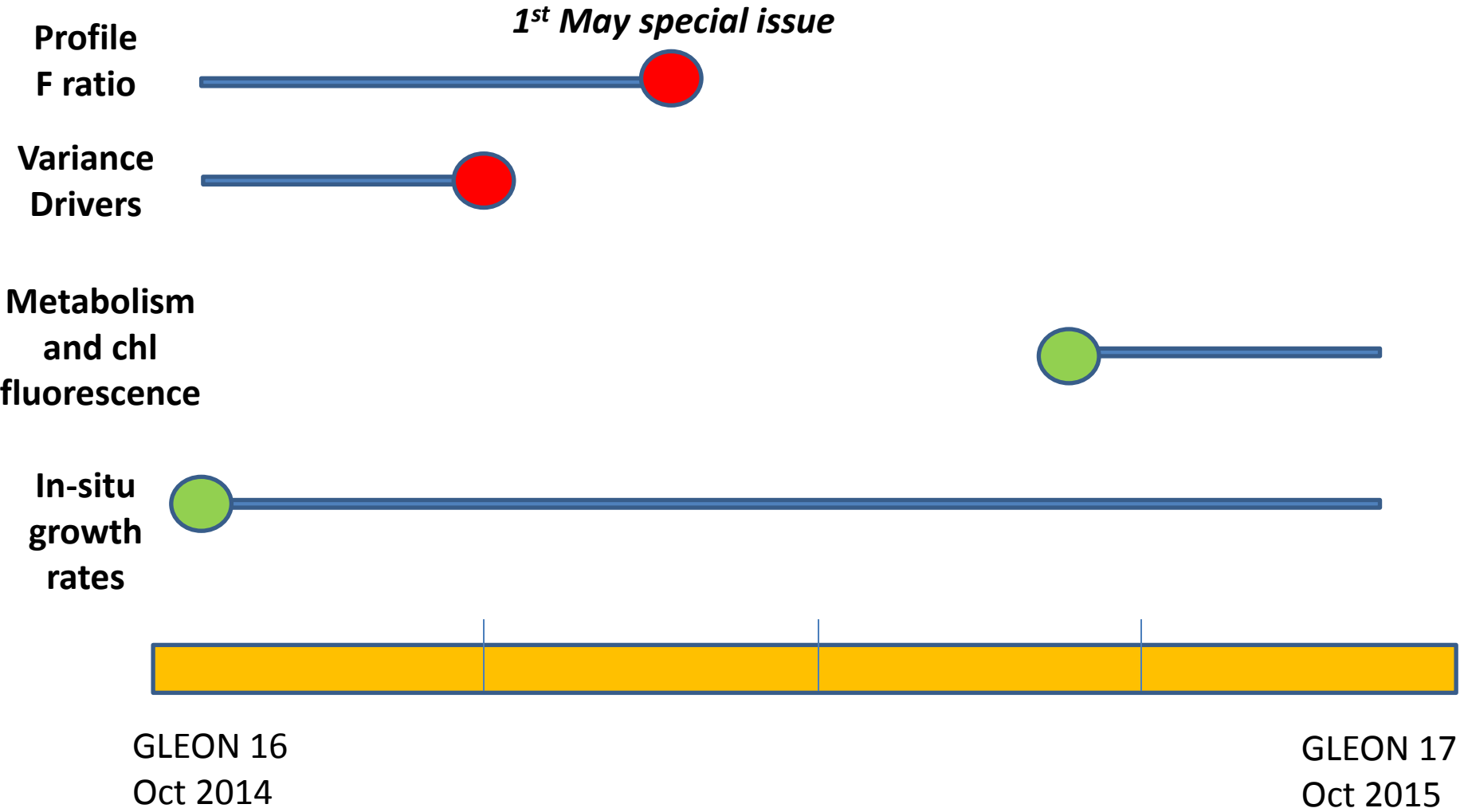
# Profile data project: conceptual model



- Discussed publishing the signal processing data archive on DataOne.
- Create a GIT Hub repository
- Alternative to Dropbox?



# GLEON 16: signal processing timeline



# Our plans for the next year

- Monthly Skype on new projects
- Finish and submit three papers in progress