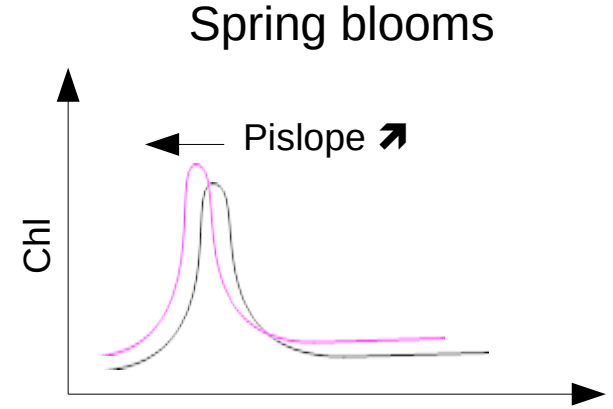
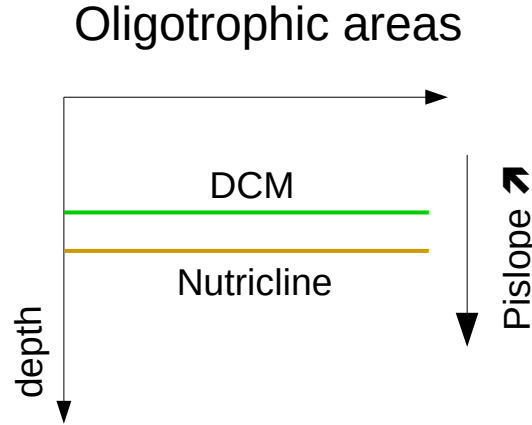
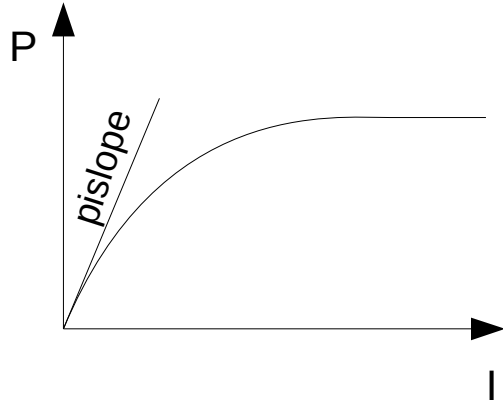
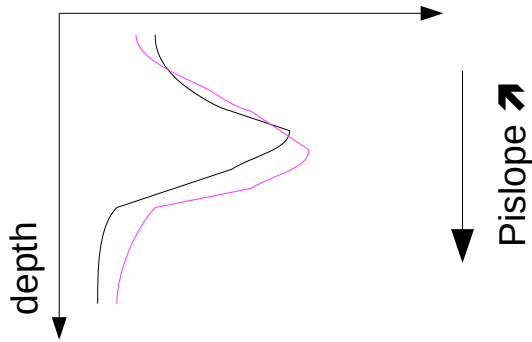


Tuning: some general hints

pislope/pislope2



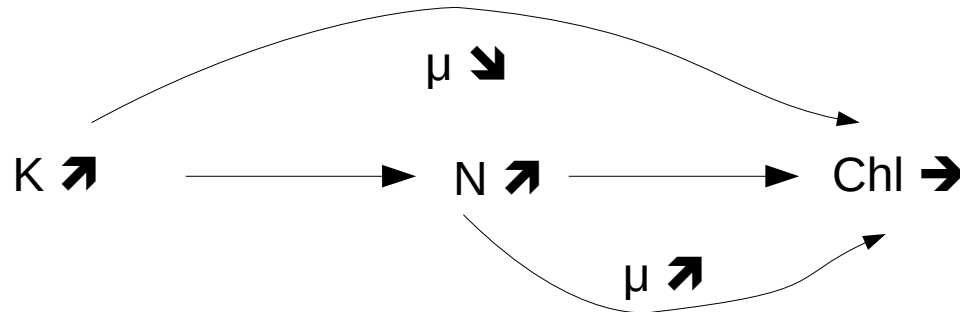
HNLC regions



Model results are very sensitive to pislope
It impacts all aspects of phytoplankton
Directly impacts Fe/C and Chl/C

Half-saturation constants

- Results are generally not very sensitive to the half-saturation constants
- In oligotrophic areas, background nutrient levels are increased and Chl levels are almost unchanged
- In high latitudes, the bloom tends to be shorter but only marginally
- Not good candidates for tuning (but different for the quota model)

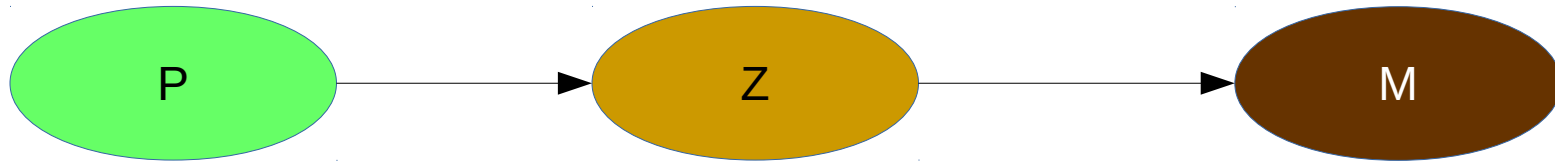


Grazing rates

- Results are very very sensitive to the grazing rates
- Mesozooplankton: easily predictable changes

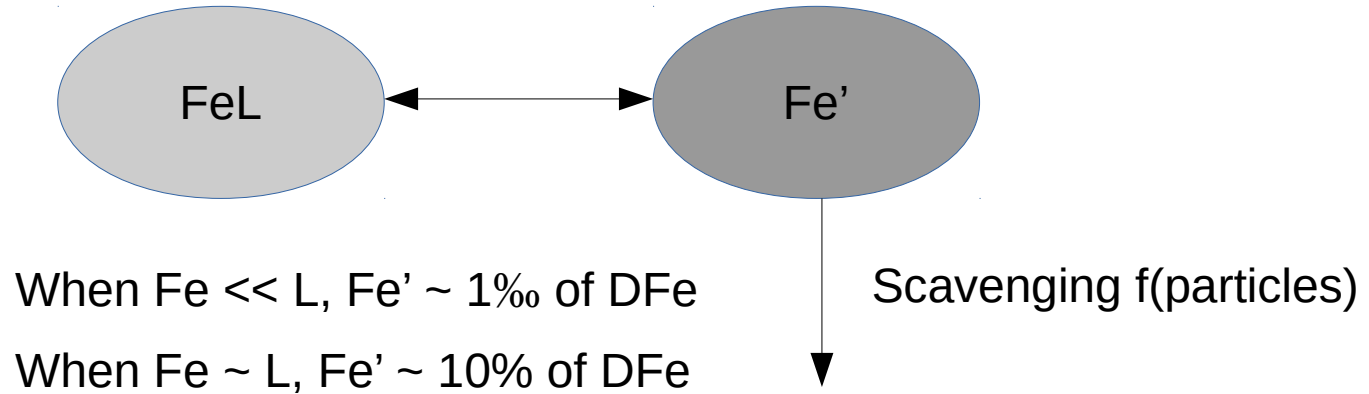
$$M \approx \frac{g}{w}$$

- Microzooplankton: much more difficult



Parameters related to the iron cycle

- Scavenging rate: Fe can be very sensitive but not in HNLC regions
- Not really constrained by the observations



- Maximum quota: results can be very sensitive to that parameter, especially in HNLC regions and spring bloom areas

The golden rules of tuning

- There is no golden rule
- Tuning requires time!
- The more you tune, the better you feel the model, the easier it is to tune
- Always look at all variables because improving a variable may degrade another variable
- Always stay within reasonable values of the parameters
- Biogeochemistry is very sensitive to ocean dynamics. Do not overcompensate for dynamical biases
- The model will never be perfect! Tuning is always a compromise (time vs. model skills vs. scientific question vs. ...)