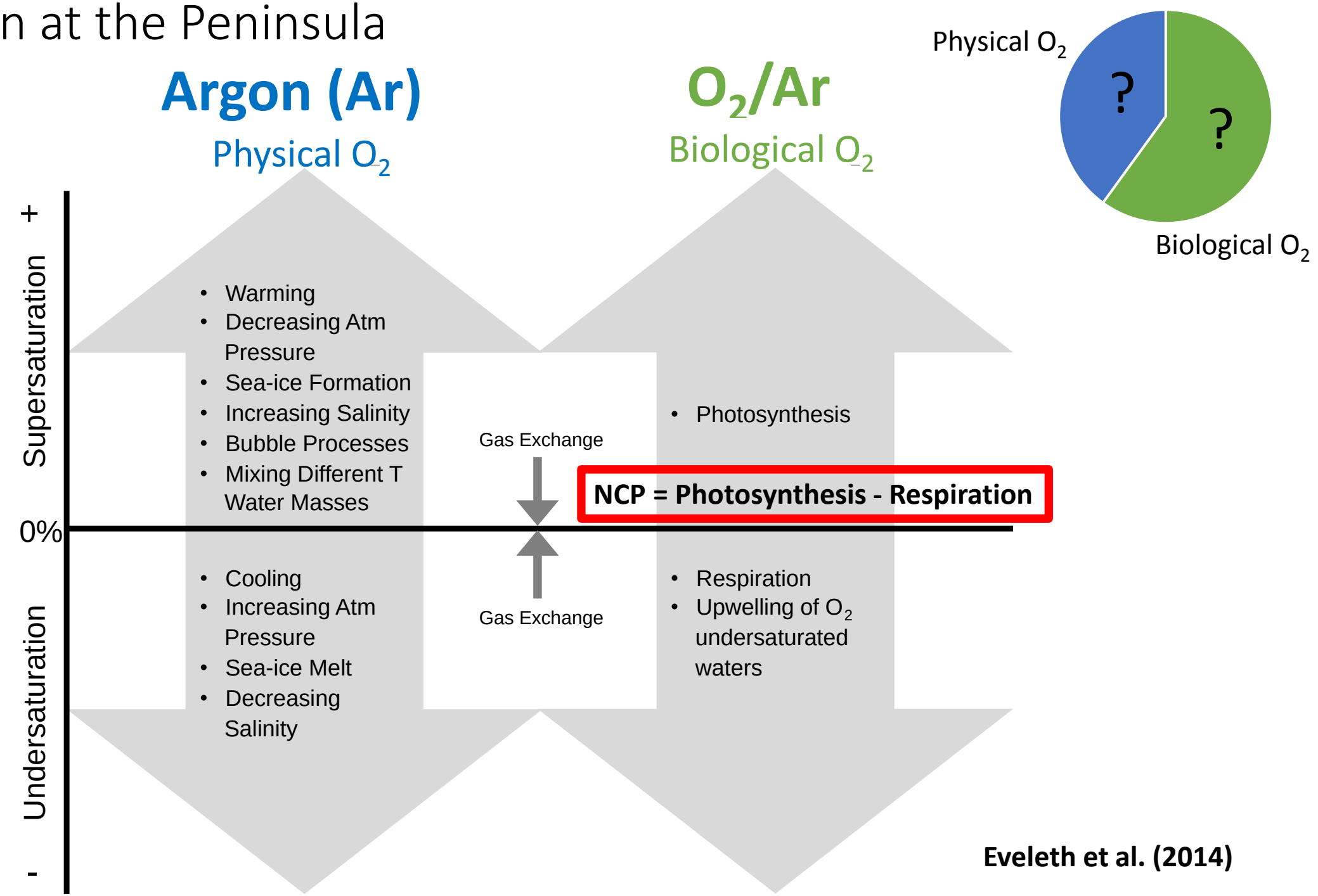
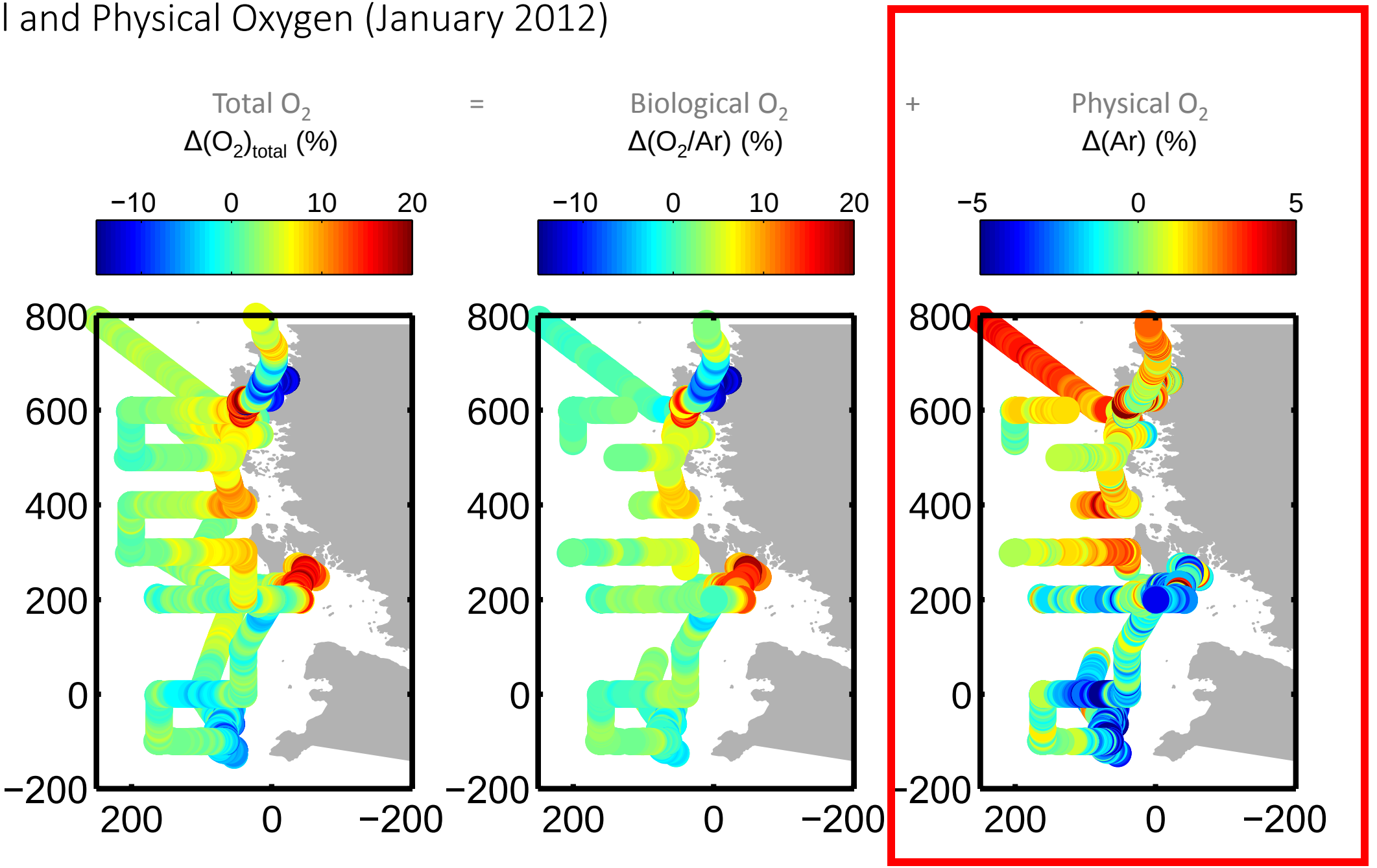
Gas saturation at the Peninsula

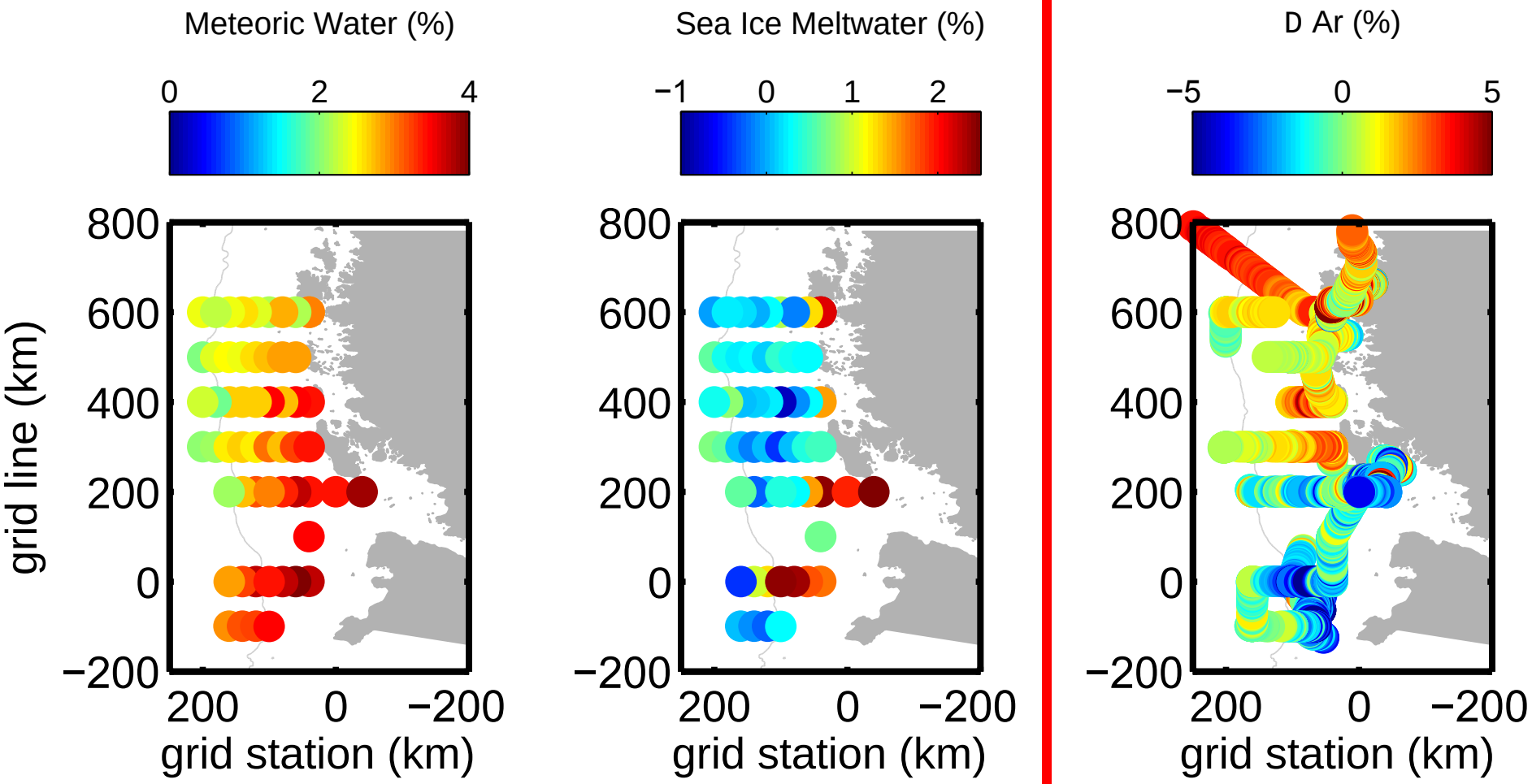


Eveleth et al. (2014)

Biological and Physical Oxygen (January 2012)

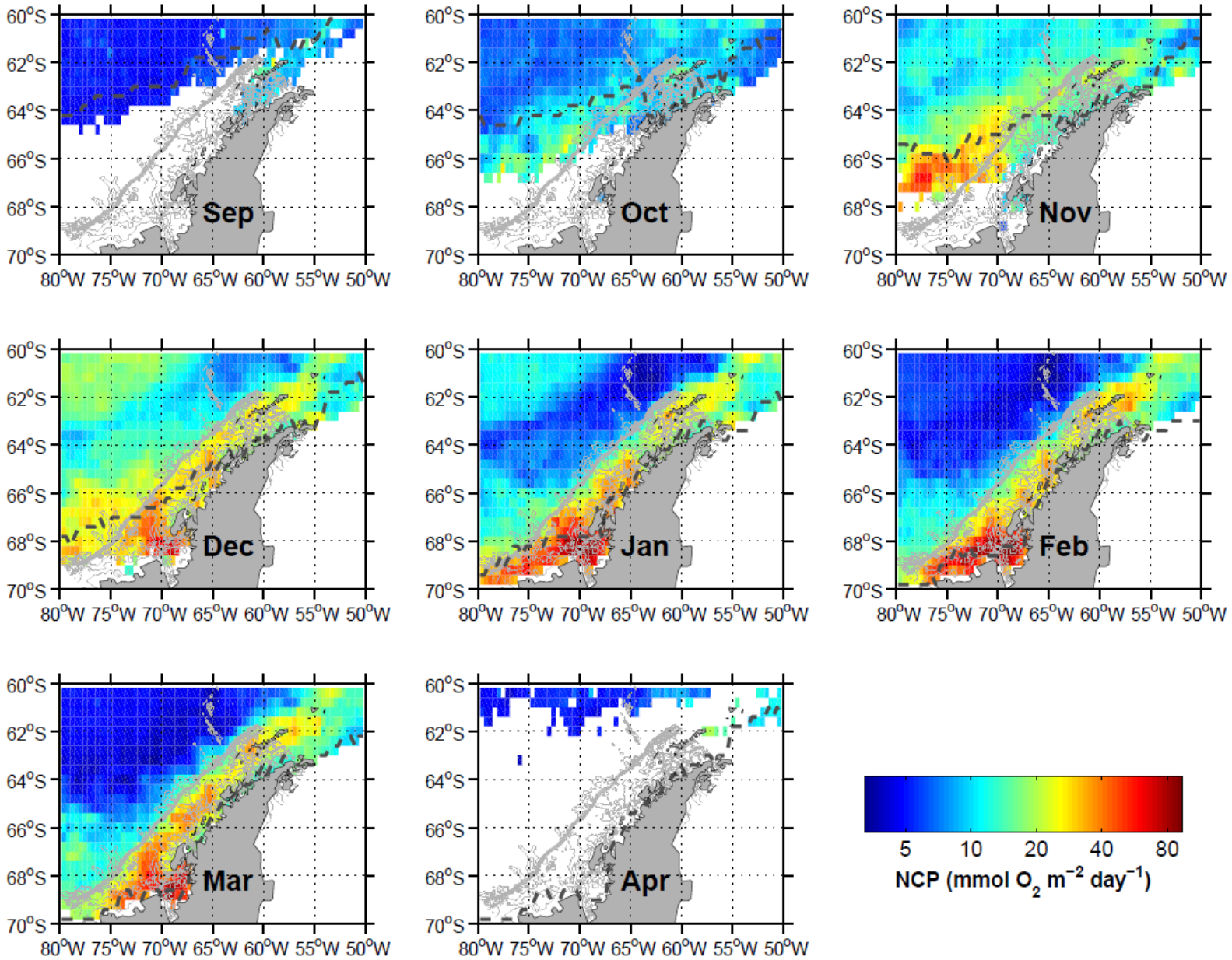


Eveleth et al. (in prep.)



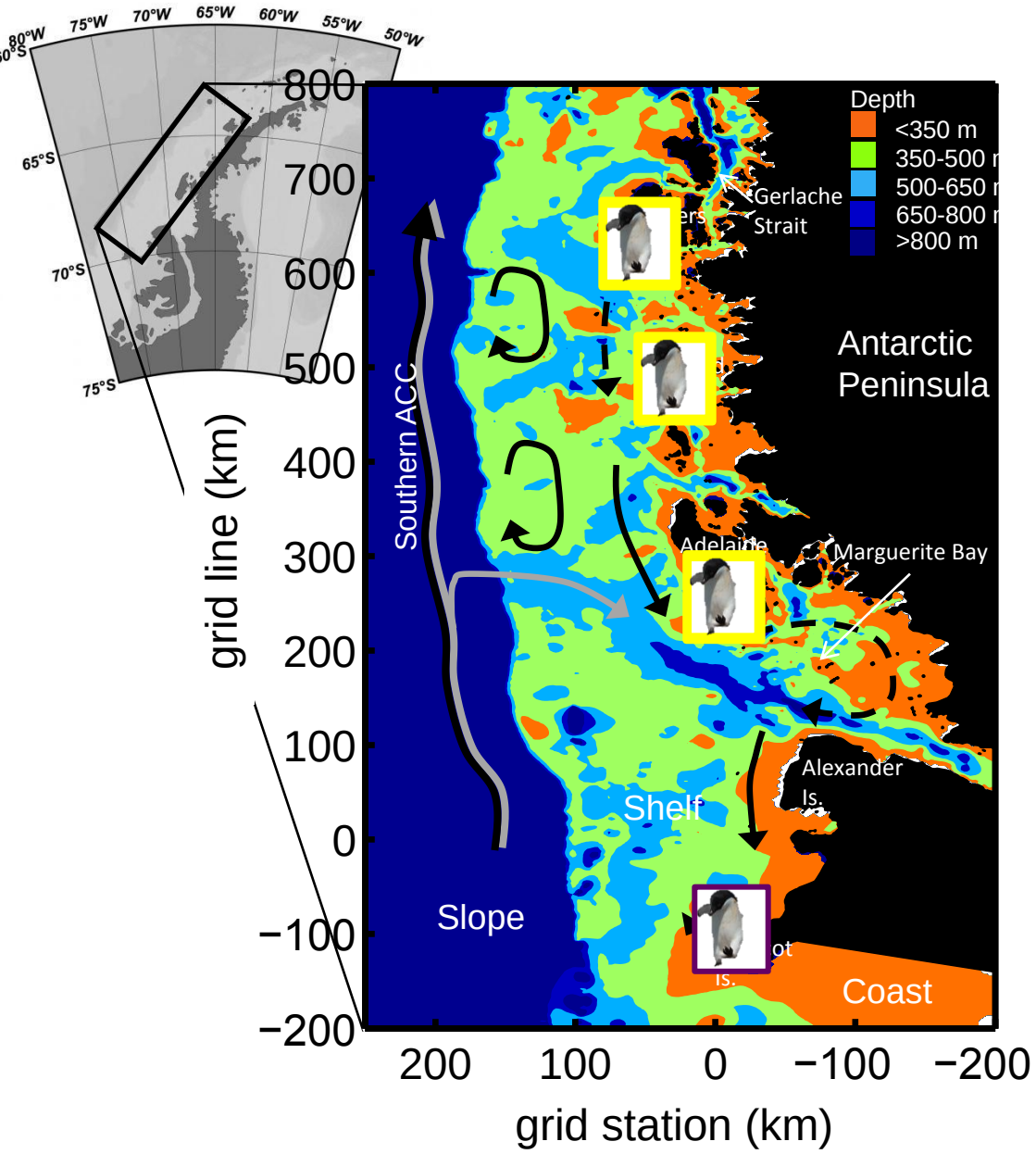
$\delta^{18}O$ data from Mike Meredith (BAS)

Eveleth et al. (in prep.)



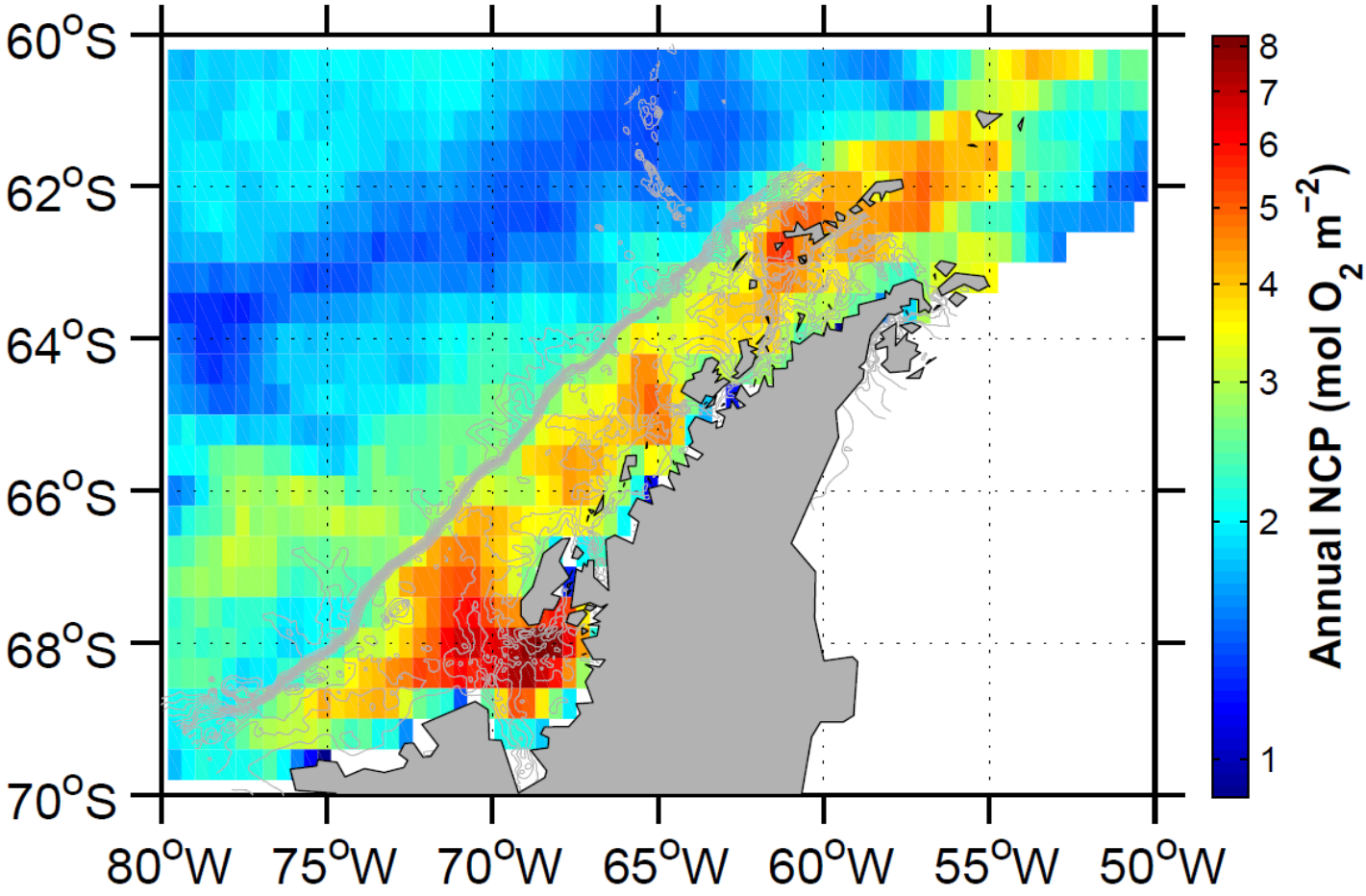
Li et al., in prep.

Monthly NCP climatology (1997-2014; SeaWiFS and MODIS)



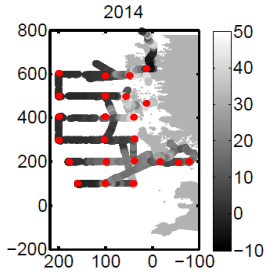
Schoefield et al. 2013, Kavanaugh et al. 2015, in press

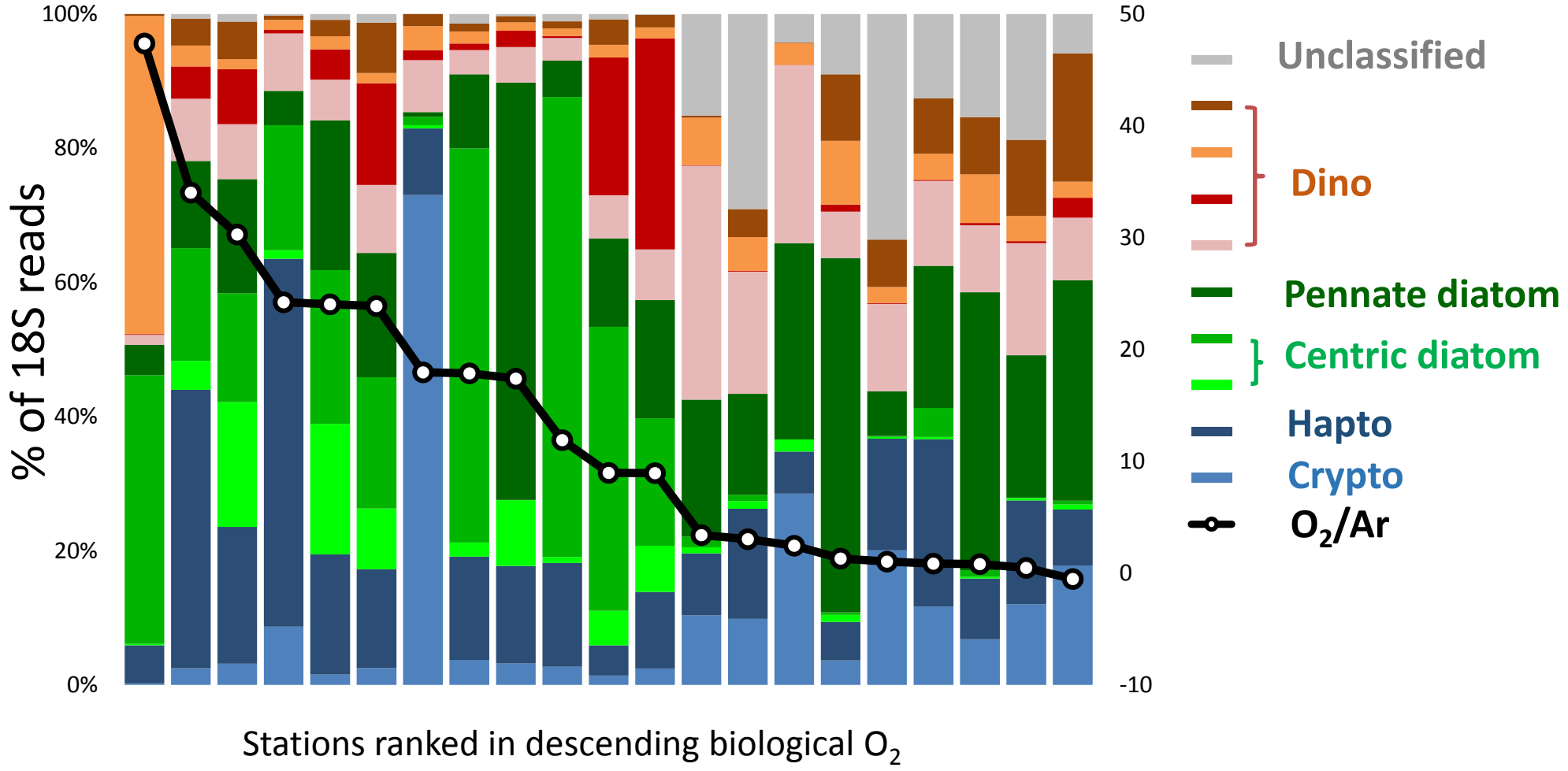
Penguin colonies collocated with high annually integrated NCP



Li et al., in prep

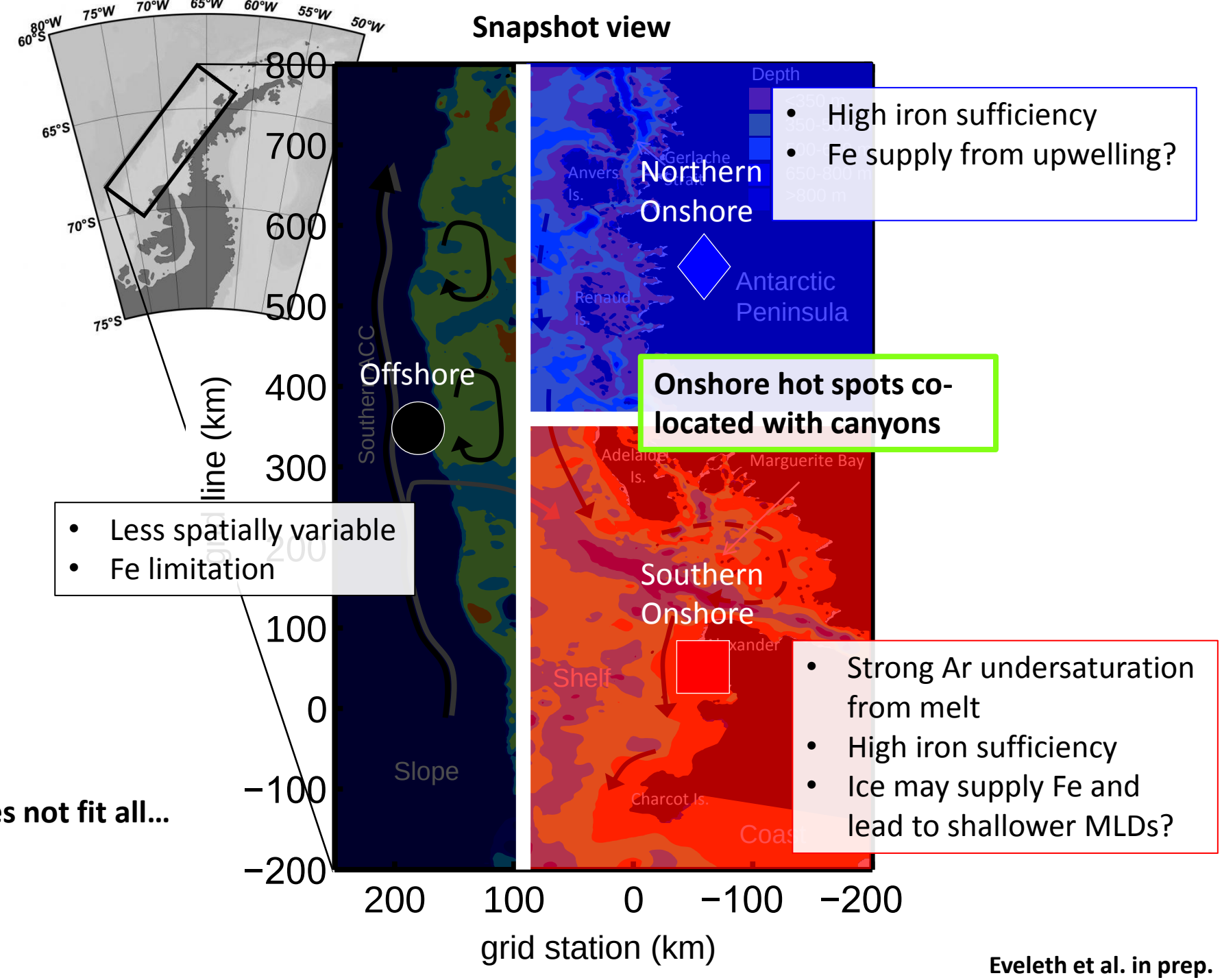
Cracking the biological black box…





Lin et al., in prep.

Preliminary Conclusions:



One (biological/physical) solution does not fit all…

Eveleth et al. in prep.

Preliminary Conclusions

- **Grid** region: **Biology** dominates O_2 saturation (strong anti-correlation O_2/Ar vs. pCO_2)
- However, large **physical** Ar undersaturation at the ice edge in **Grid** (**Drake: Physics** dominates O_2)

- **NCP: Diatoms** are not equal, not just **Crypto** vs. **Diatoms**
- Physiological impact of light and Fe translates into changes in community production (Grazing?)
- Role of canyons in NCP (field, satellite observations & penguin colonies)

- Winter priming (preconditioning) is important, biological response varies