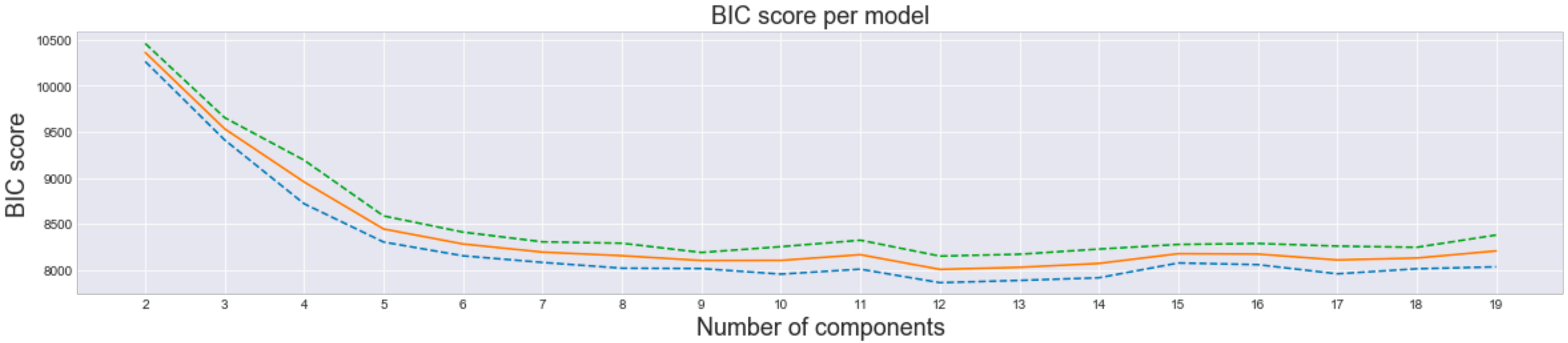
SO-CHIC dataset

Initial clustering results, depth restricted between 100-900m

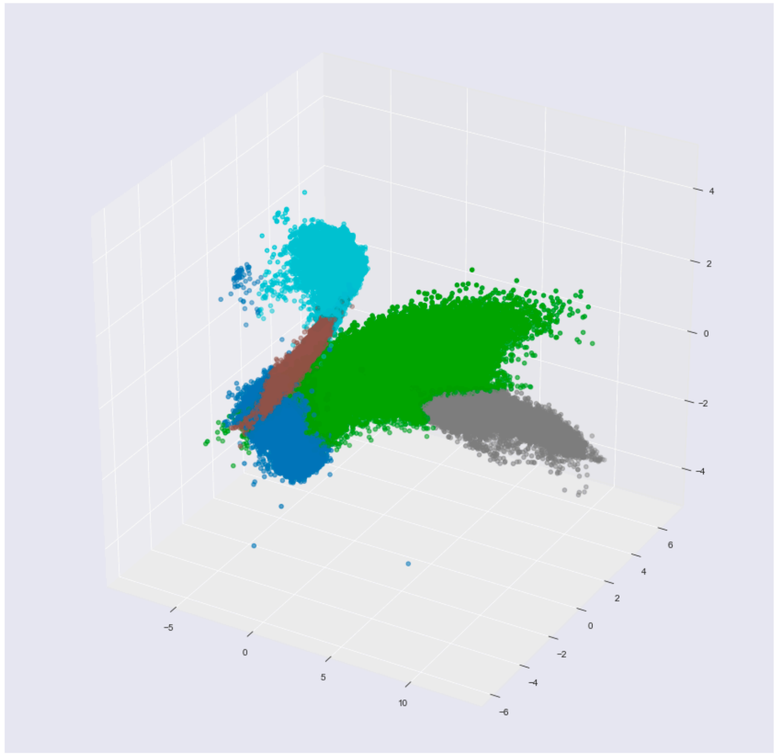
https://github.com/so-wise/weddell_gyre_clusters

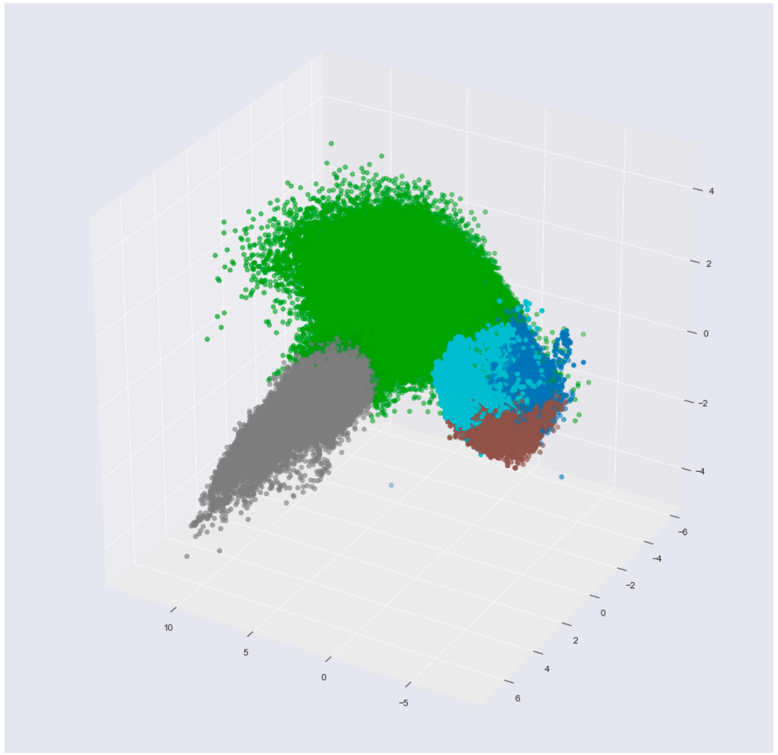
BIC asymptotes

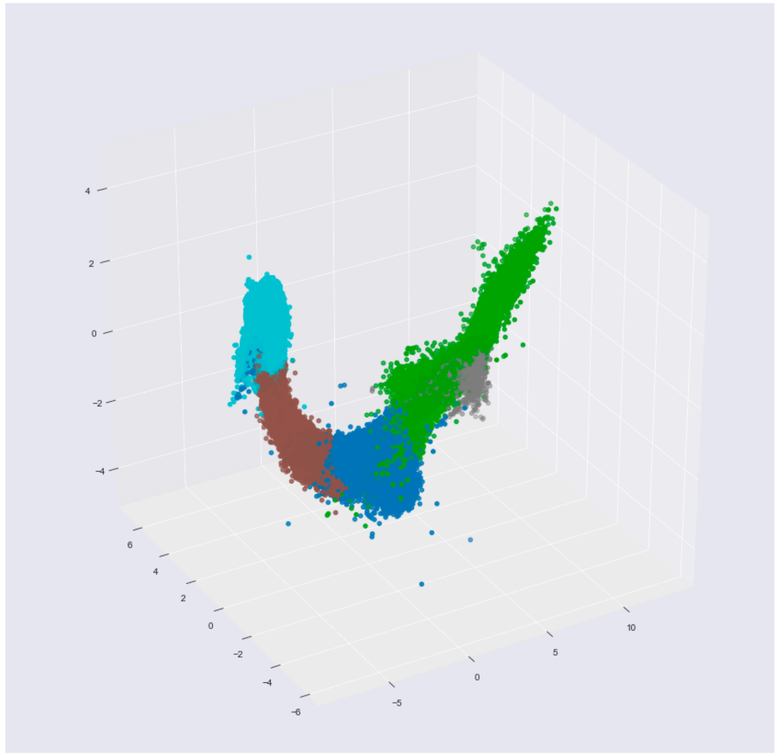


Select N=5 (elbow, low complexity)

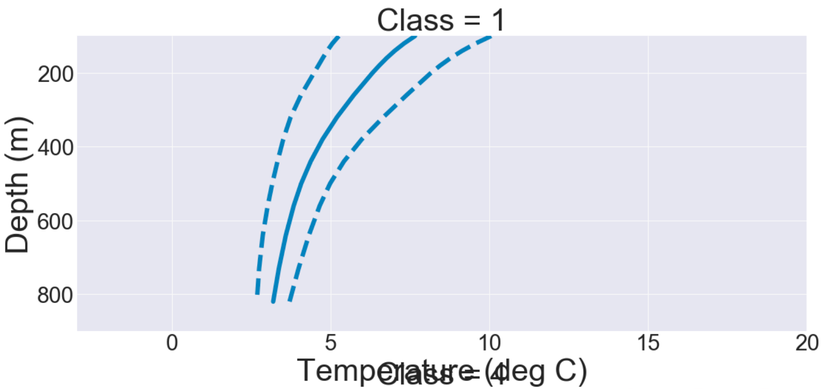
Clusters reasonably distinct in PC space

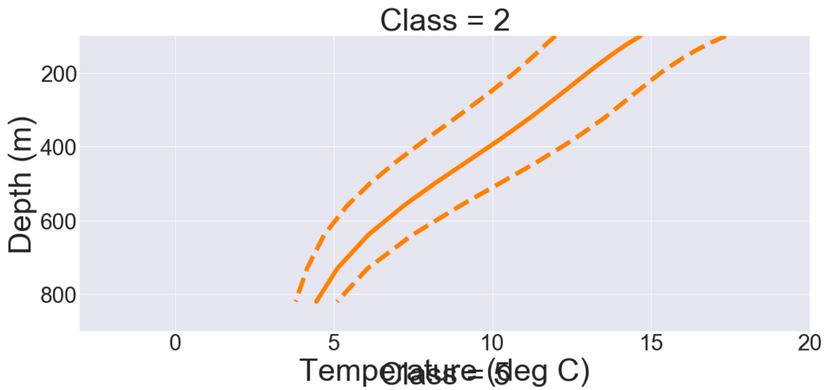


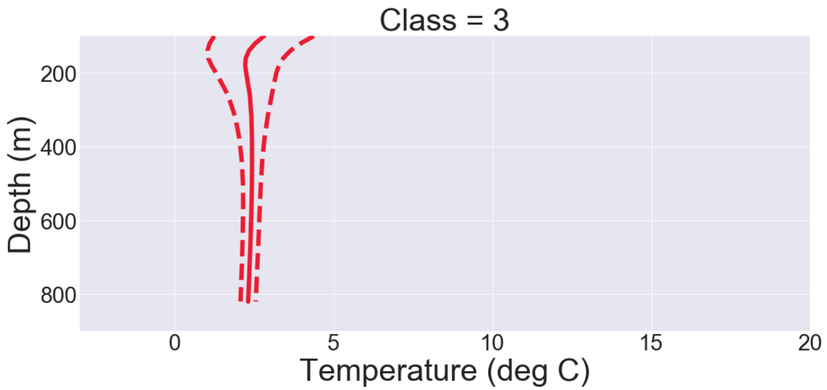


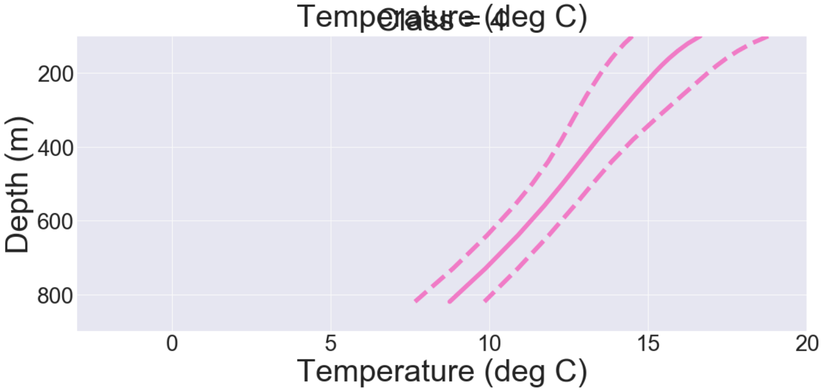


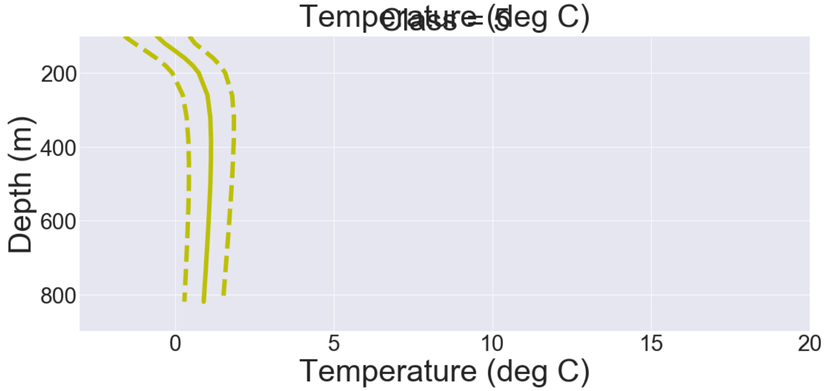
Clear separation of profile types (temp.)





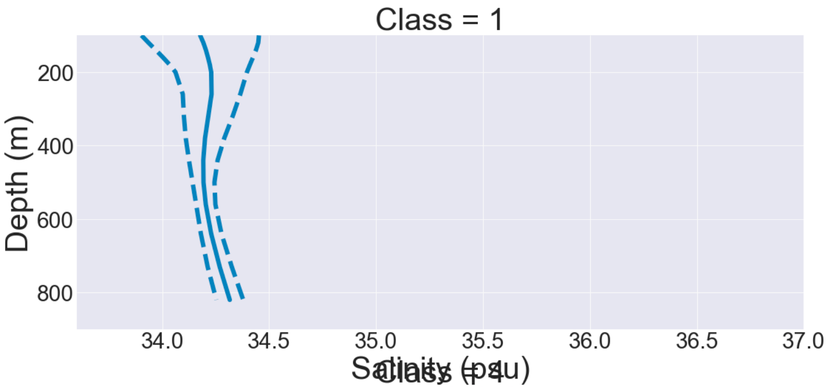


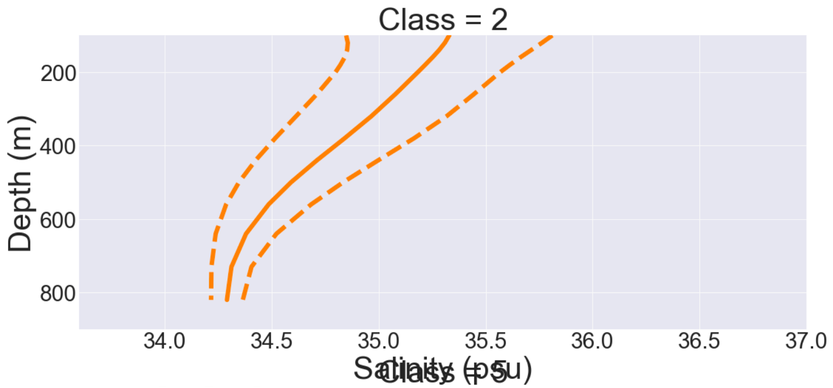


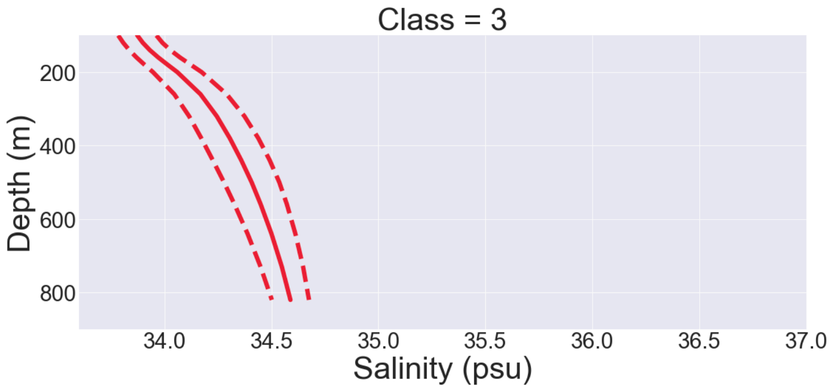


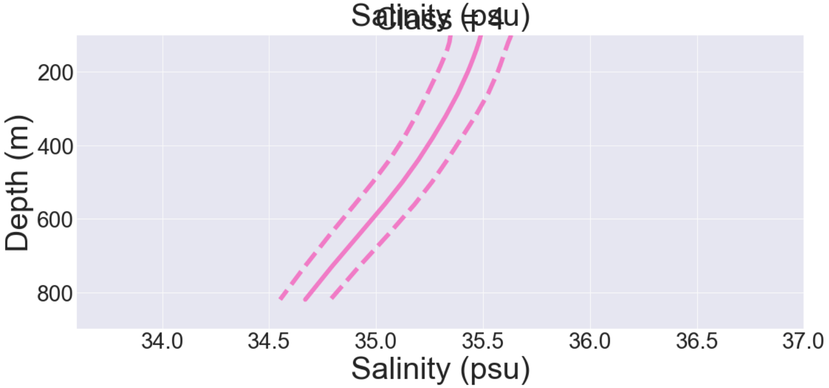
Class 5 is the salt-stratified near-Antarctic class

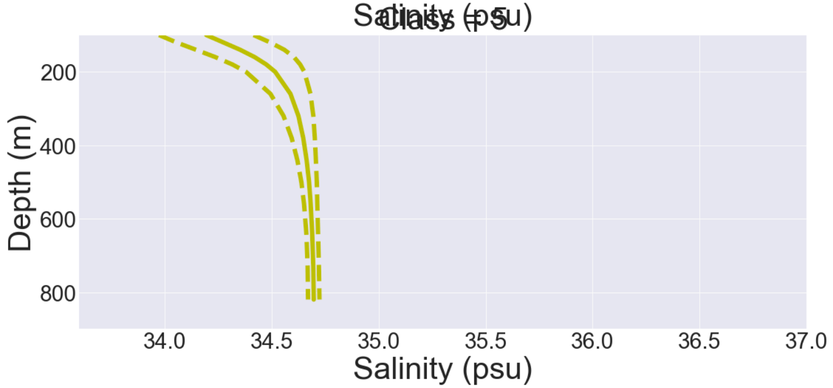
Clear separation of profile types (salt)





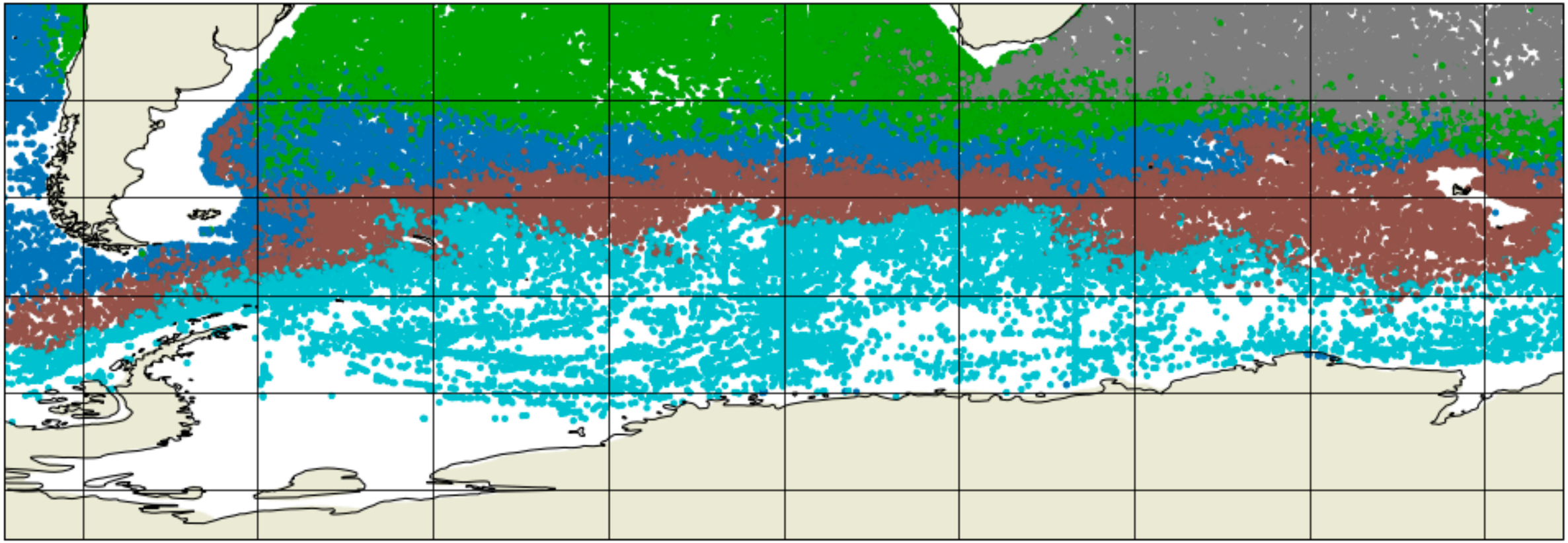




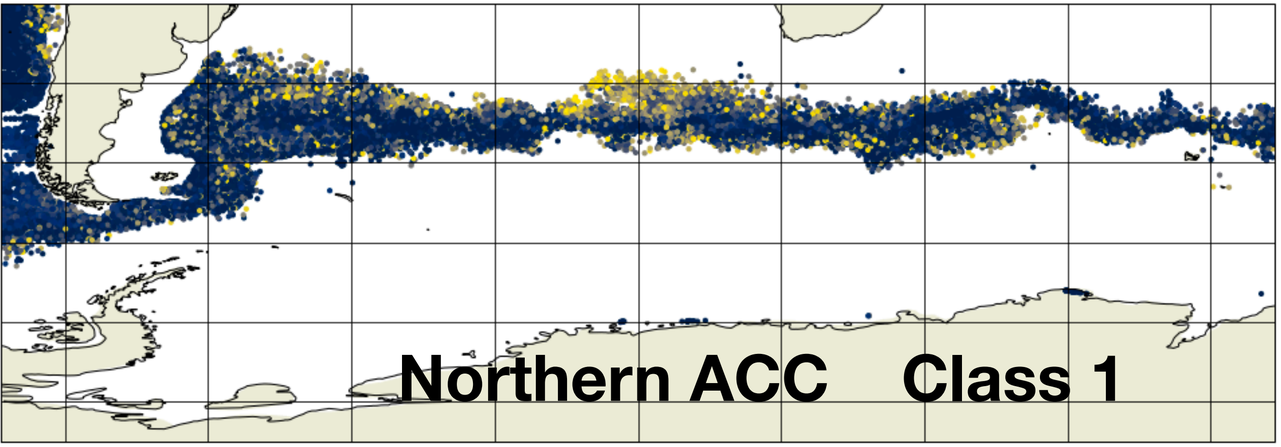


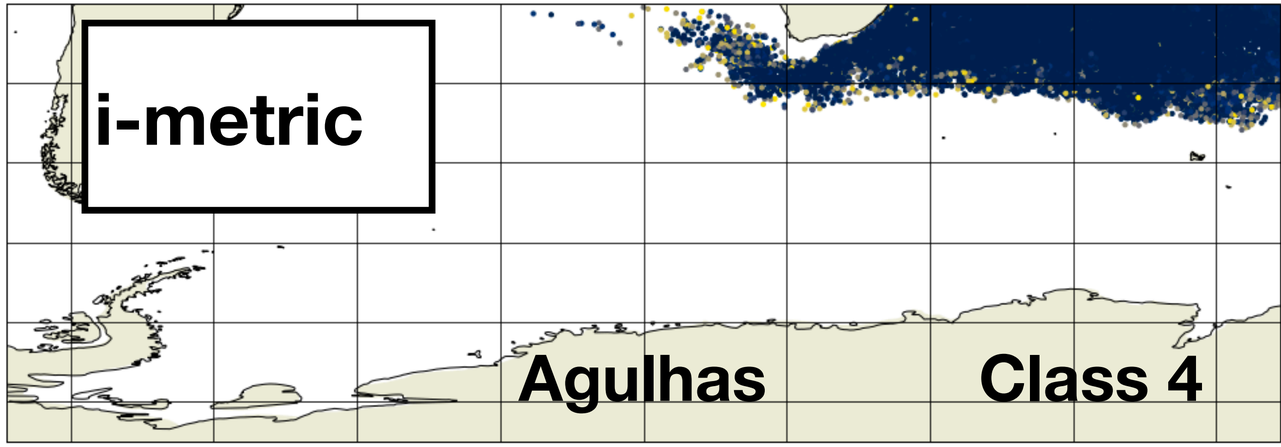
Class 5 is the salt-stratified near-Antarctic class

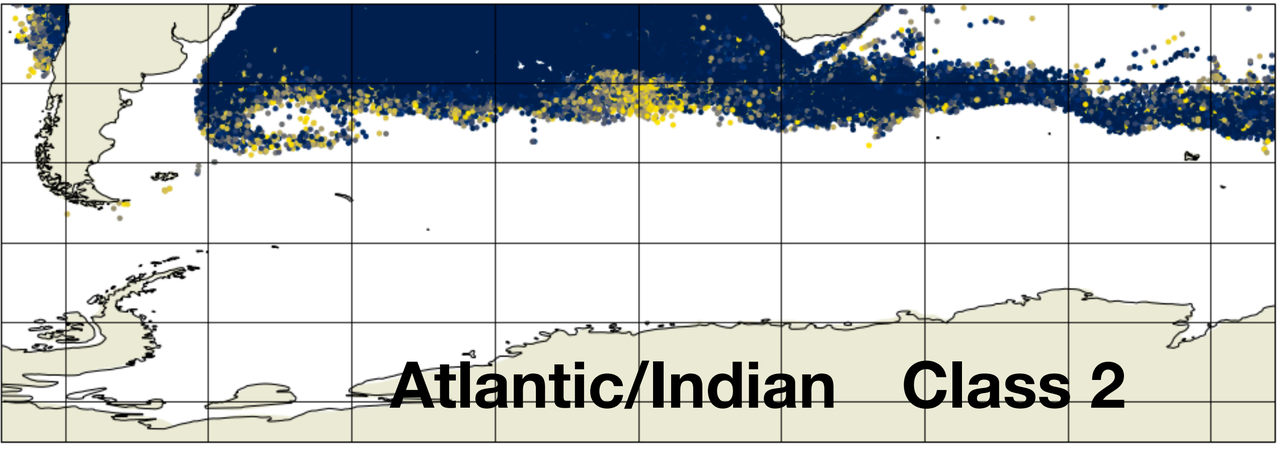
Class label map

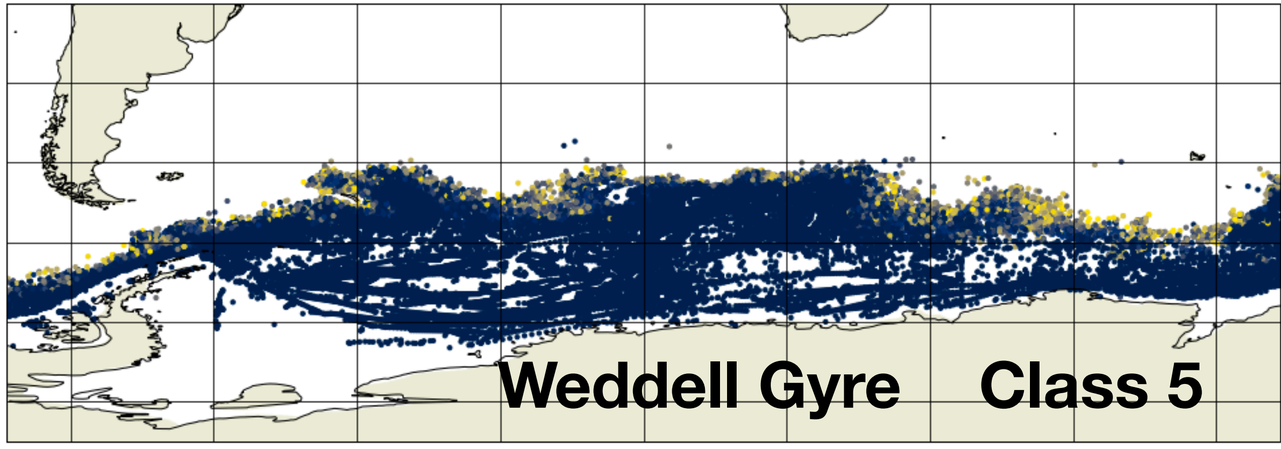


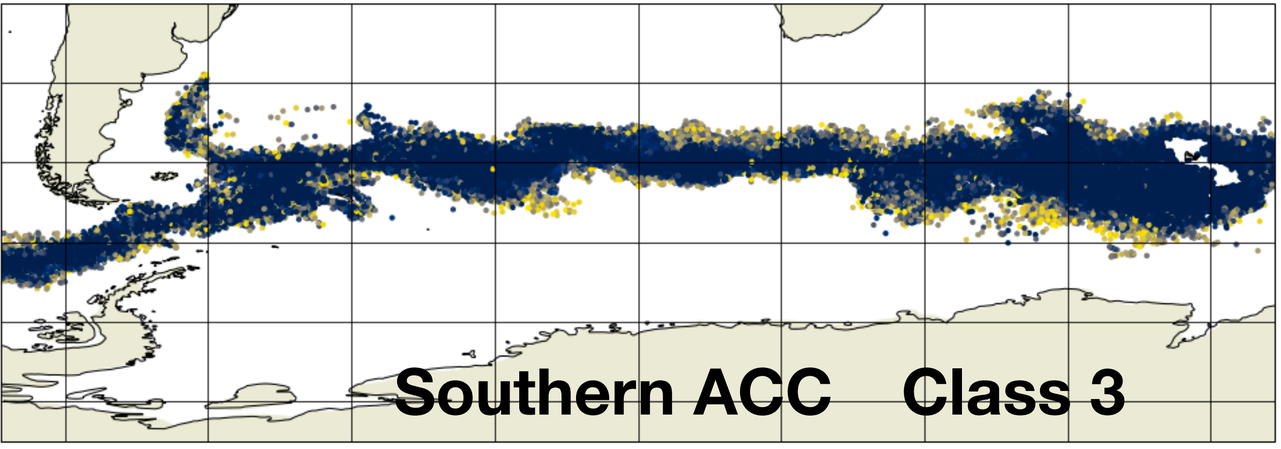
Reasonably clear separation in lat-lon space









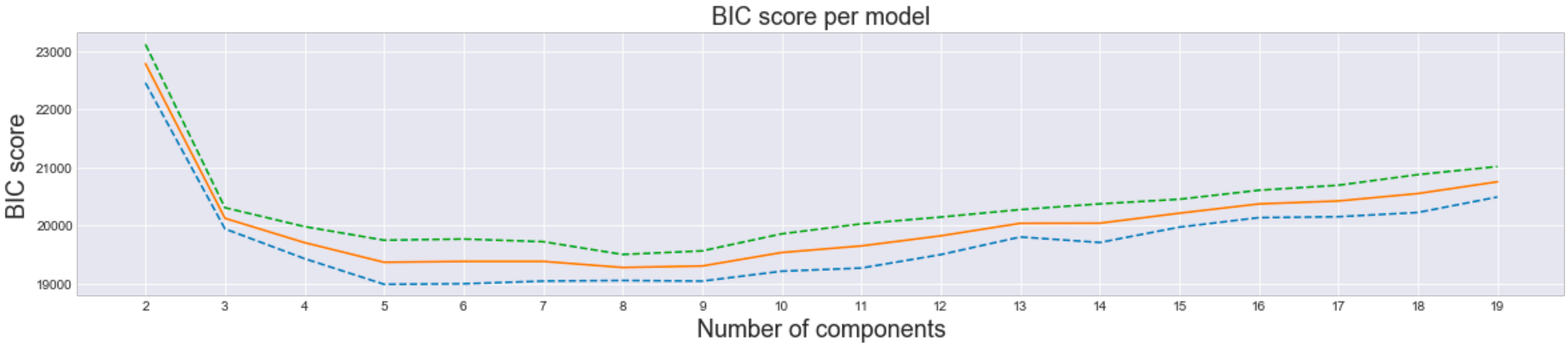


Lighter : *more* likely to be near a boundary
Darker : *less* likely to be near a boundary

Near-antarctic sub-classes

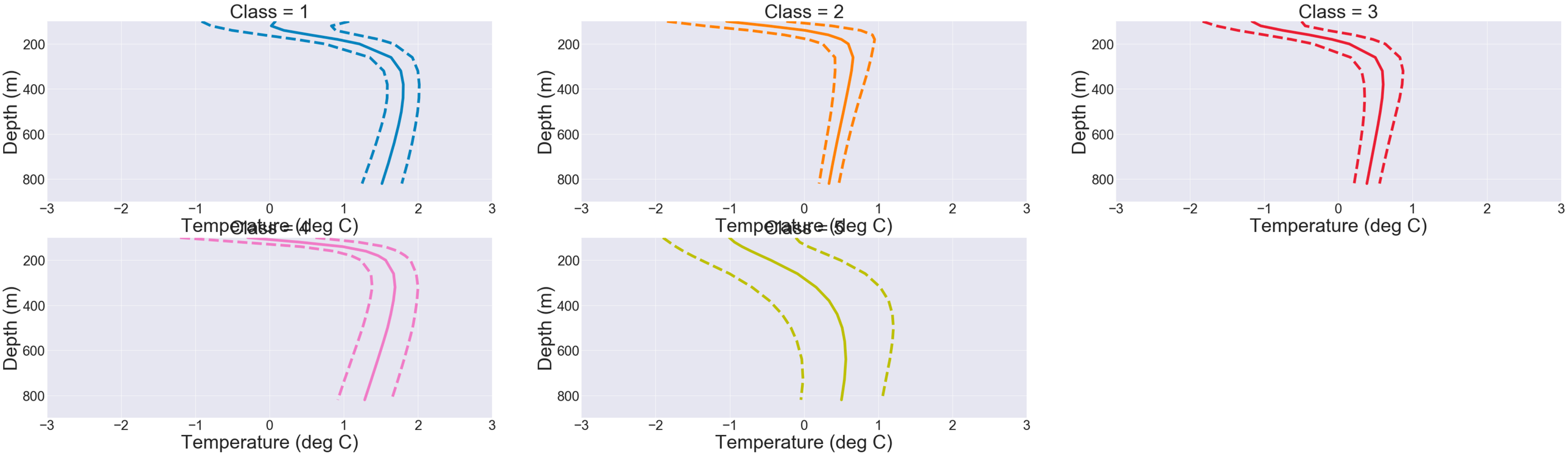
Use Antarctic class from previous slides; look for sub-divisions

BIC minimum in the range 5-9



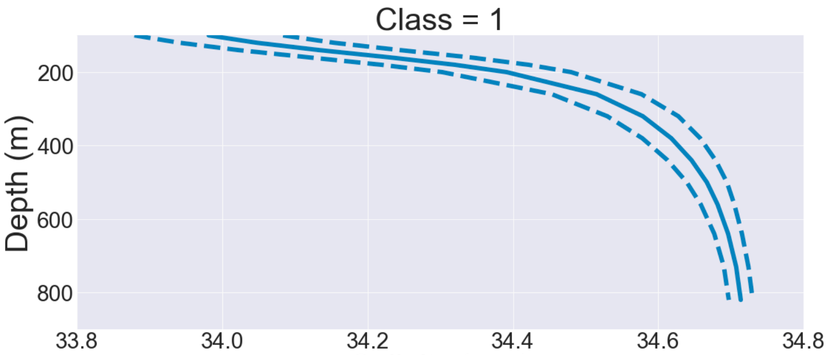
Select N=5 (low complexity)

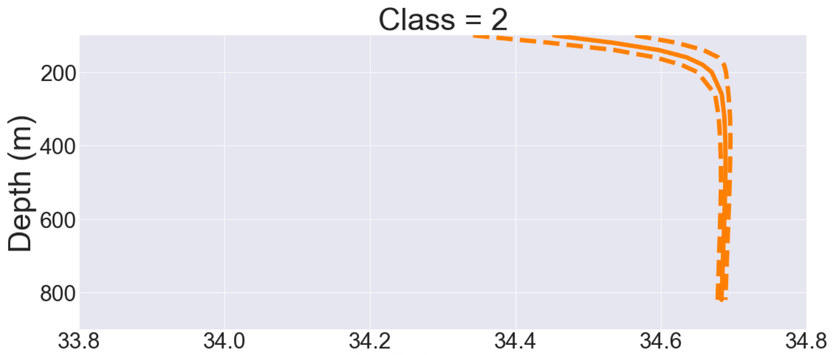
Less clear separation of types (temp.)

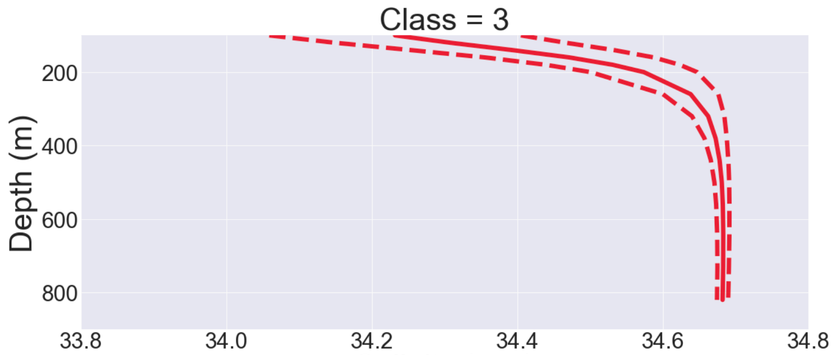


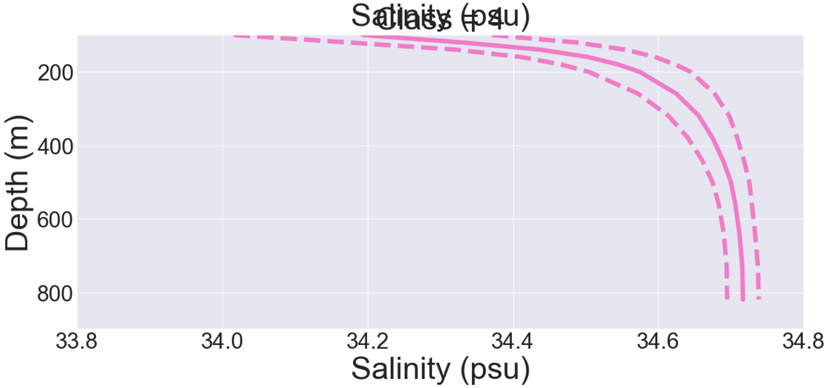
All salt stratified. Class 2 is associated with the central gyre. Class 3 is associated with the area around the central gyre.

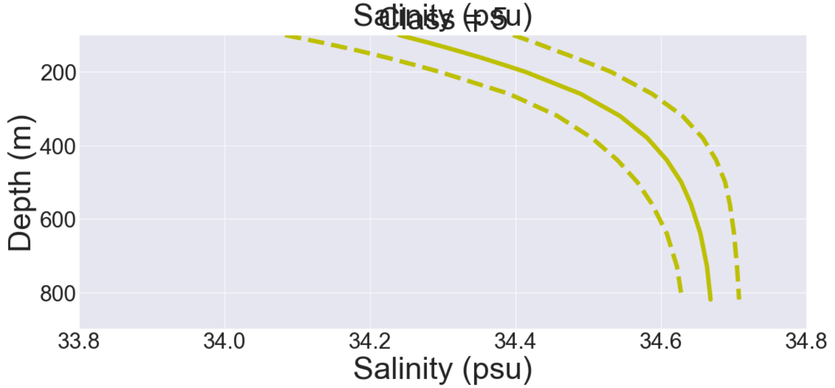
Less clear separation of types (salt)











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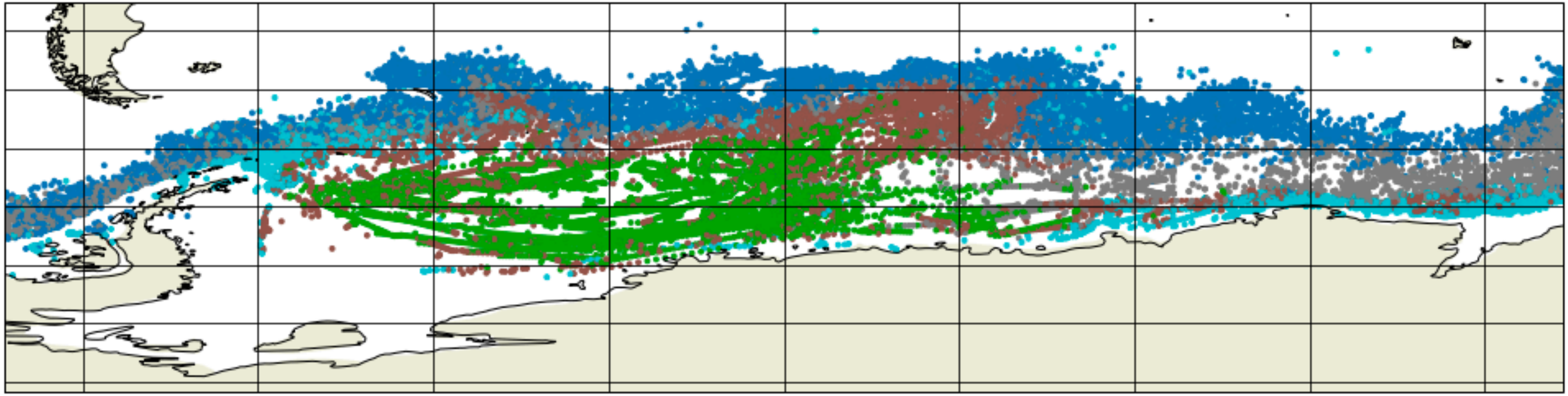

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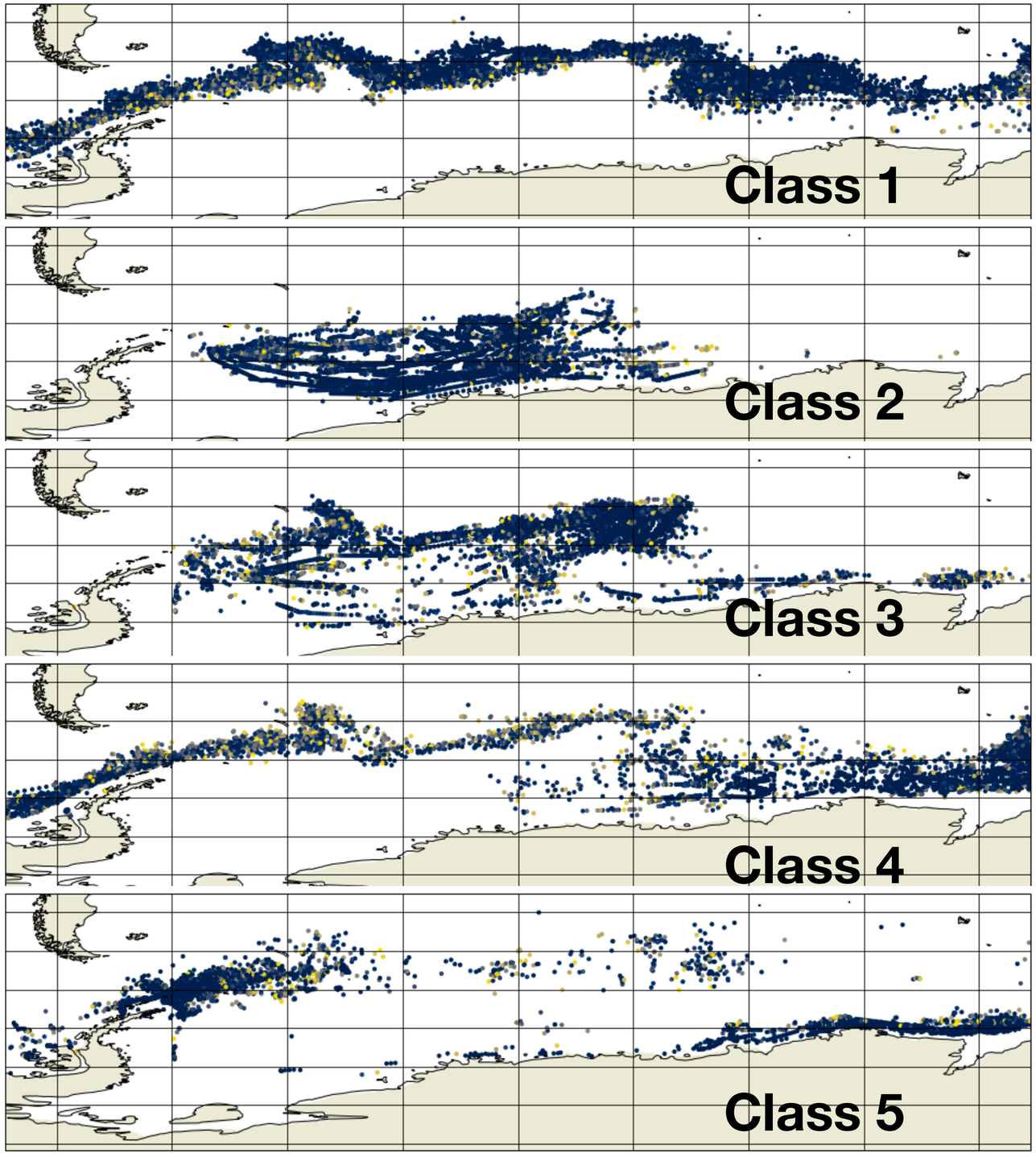

i-metric

ACC

Central gyre

Peripheral gyre and ASC

ACC and ASC (mixing regions?)

Inflow/outflow?

Next steps

- Sensitivity to training dataset sampling strategy (at present, non-uniform)
- Sensitivity to different dimensionality-reduction methods (e.g. tSNE)
- Sensitivity to other classification methods