



### Today's agenda

09:00 – 10:00	Arrival at IOW, Coffee/Tea
10:00 – 10:15	<b>(1) Welcome</b> by Manja and Markus (Overview of the current status & planned coordinated experiments)
10:15 – 11:00	<b>(2) Introduction</b> into the Baltic Sea setups of MOM, GETM, NEMO, HBM, SCHISM, ECOSMO, etc. and present status
11:00 – 12:00	<b>(3) Project draft</b> (Discussion about ideas/goals of all participants)
12:00	Group photo
12:00 – 13:00	Lunch
13:00 – 15:00	<b>(4) Animating the project</b> (Determination of required output data and formats)
15:00 – 15:15	Coffee & tea break
15:15 – 16:15	<b>(5) Agreement</b> on data processing
16:15 – 17:00	<b>(6) Project fixation</b> (Final discussions & summary of defined decisions)
17:00	End of the workshop, Departure





# (1) Welcome – Overview of the current status and planned coordinated experiments –



ORIGINAL RESEARCH  
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The  
story  
behind  
...

## Long-Term Mean Circulation of the Baltic Sea as Represented by Various Ocean Circulation Models

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The skill of the state-of-the-art ocean circulation models GETM (General Estuarine Transport Model), RCO (Rossby Centre Ocean model), and MOM (Modular Ocean Model) to represent hydrographic conditions and the mean circulation of the Baltic Sea is investigated. The study contains an assessment of vertical temperature and salinity profiles as well as various statistical time series analyses of temperature and salinity for different depths at specific representative monitoring stations. Simulation results for 1970–1999 are compared to observations from the Baltic Environmental Database (BED). Further, we analyze current velocities and volume transports both in the horizontal plane and through three transects in the Baltic Sea. Simulated current velocities are validated against 10 years of Acoustic Doppler Current Profiler (ADCP) measurements in the Arkona Basin and 5 years of mooring observations in the Gotland Basin. Furthermore, the atmospheric forcing datasets, which drive the models, are evaluated using wind measurements from 28 automatic stations along the Swedish coast. We found that the seasonal cycle, variability, and vertical profiles of temperature and salinity are simulated close to observations by RCO with an assimilation setup. All models reproduce temperature well near the sea surface. Salinity simulations are of

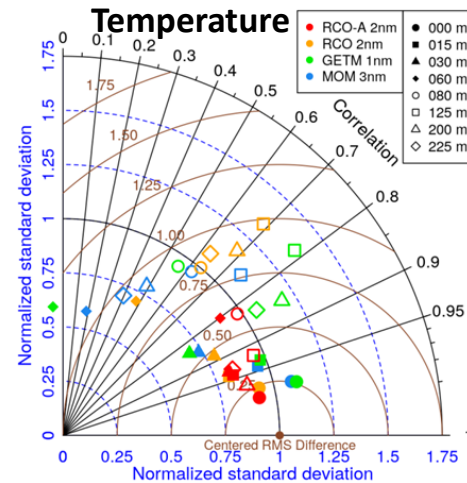
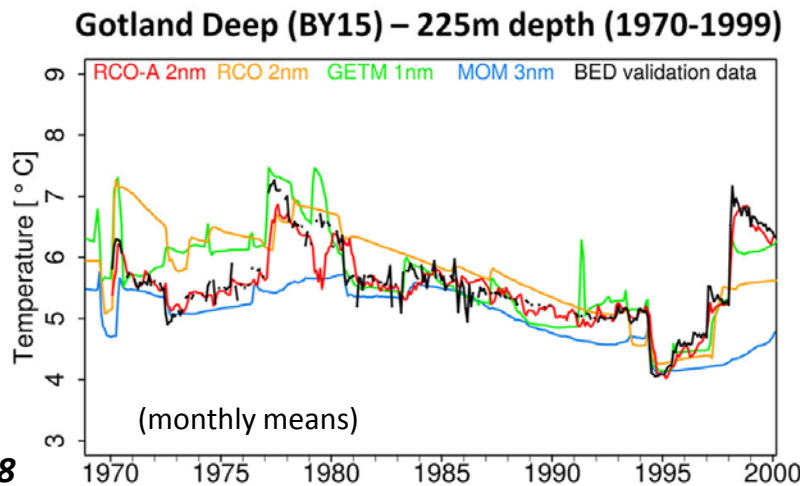
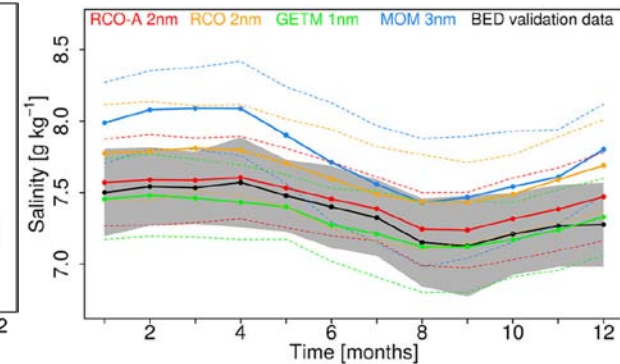
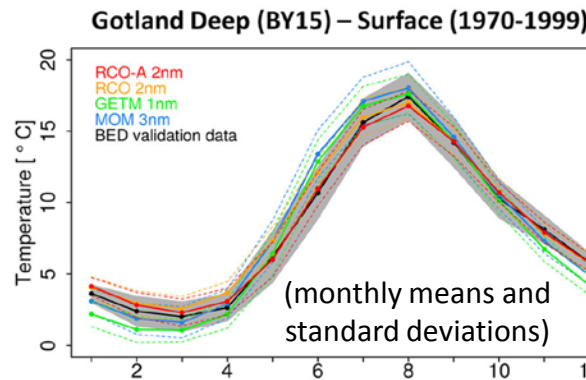
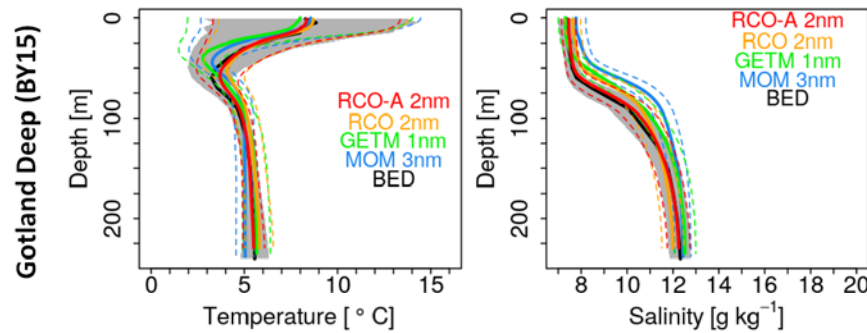
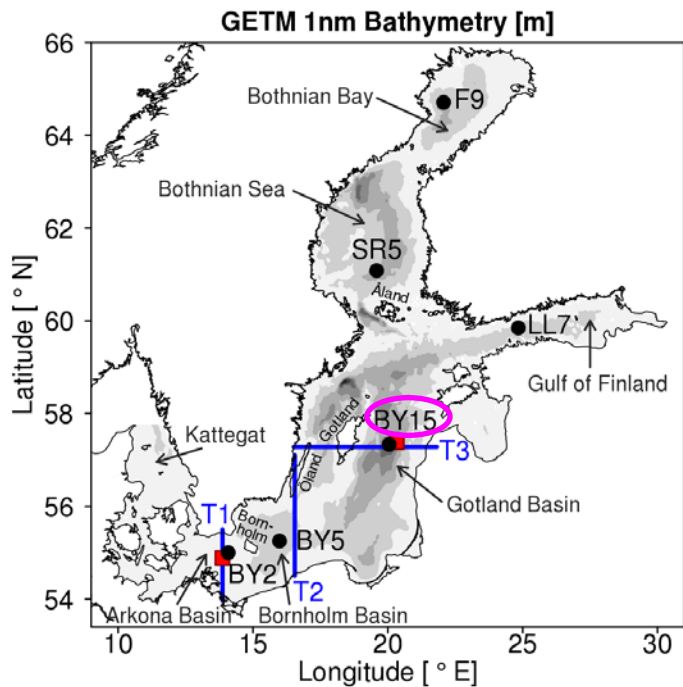
- Analyzing the applicability of ocean circulation models in the Baltic Sea
- Different setups, grid resolutions, atmospheric and hydrological forcing

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## (1) Welcome (Current status and planned experiments)

**30-year  
means  
(1970-1999)**

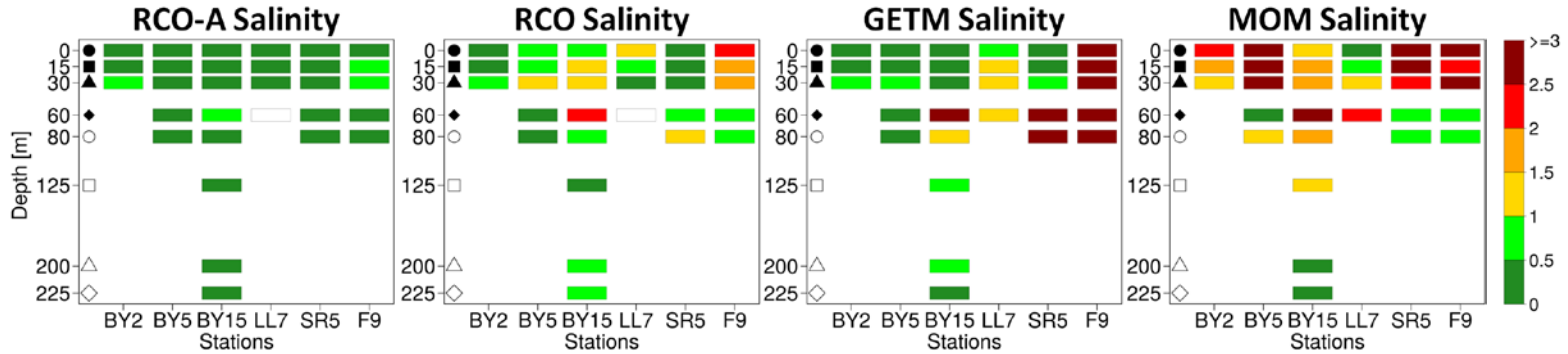




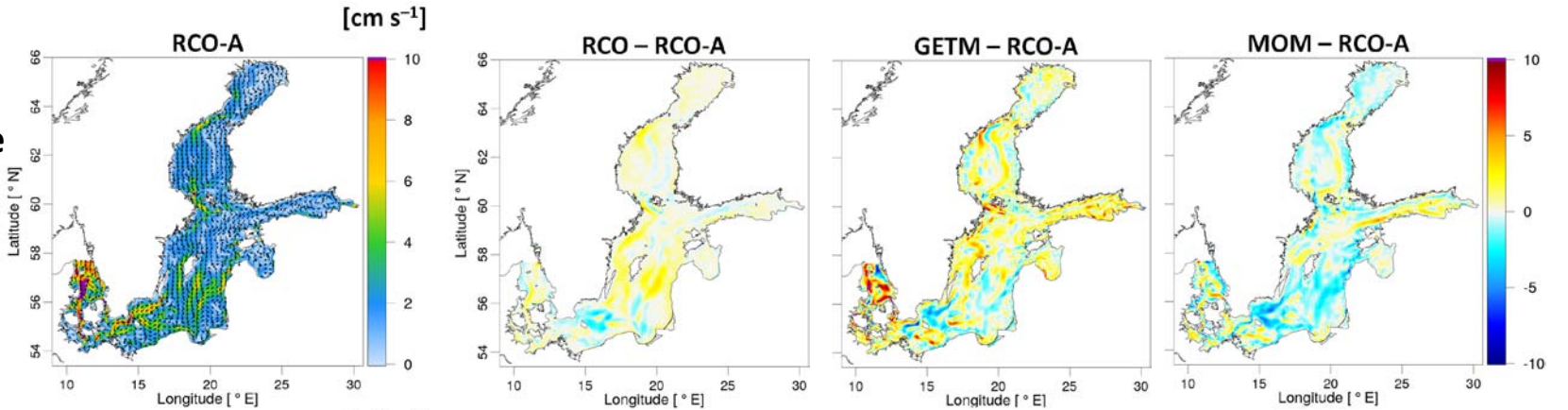
## (1) Welcome (Current status and planned experiments)

30-year  
cost function  
values  
(1970-1999)

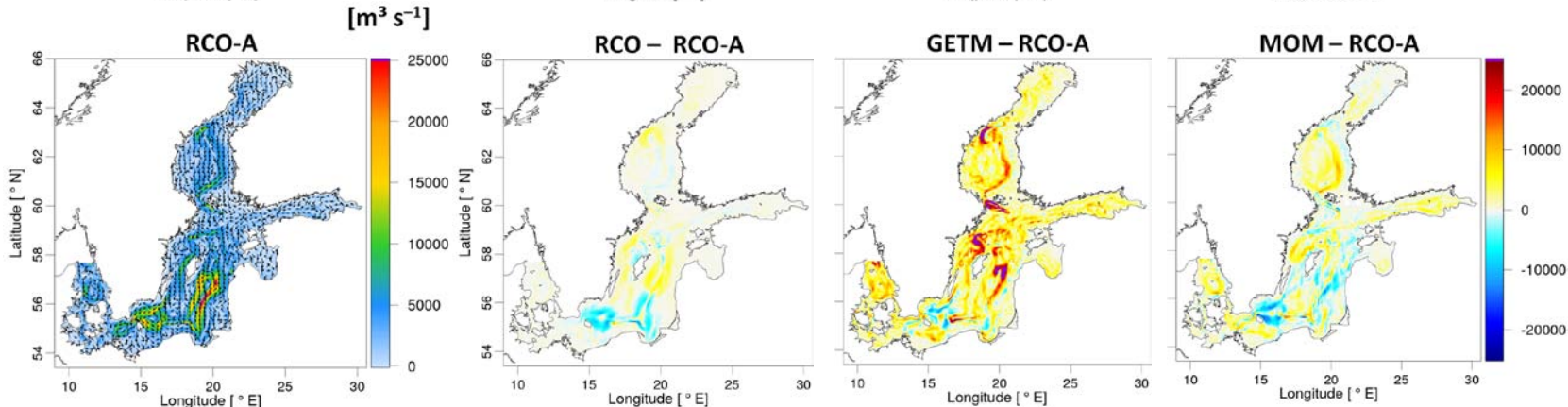
$$C_i = \left| \frac{M_i - B}{STD} \right|$$



30-year  
mean surface  
velocity  
(0 to 10 m  
depth)



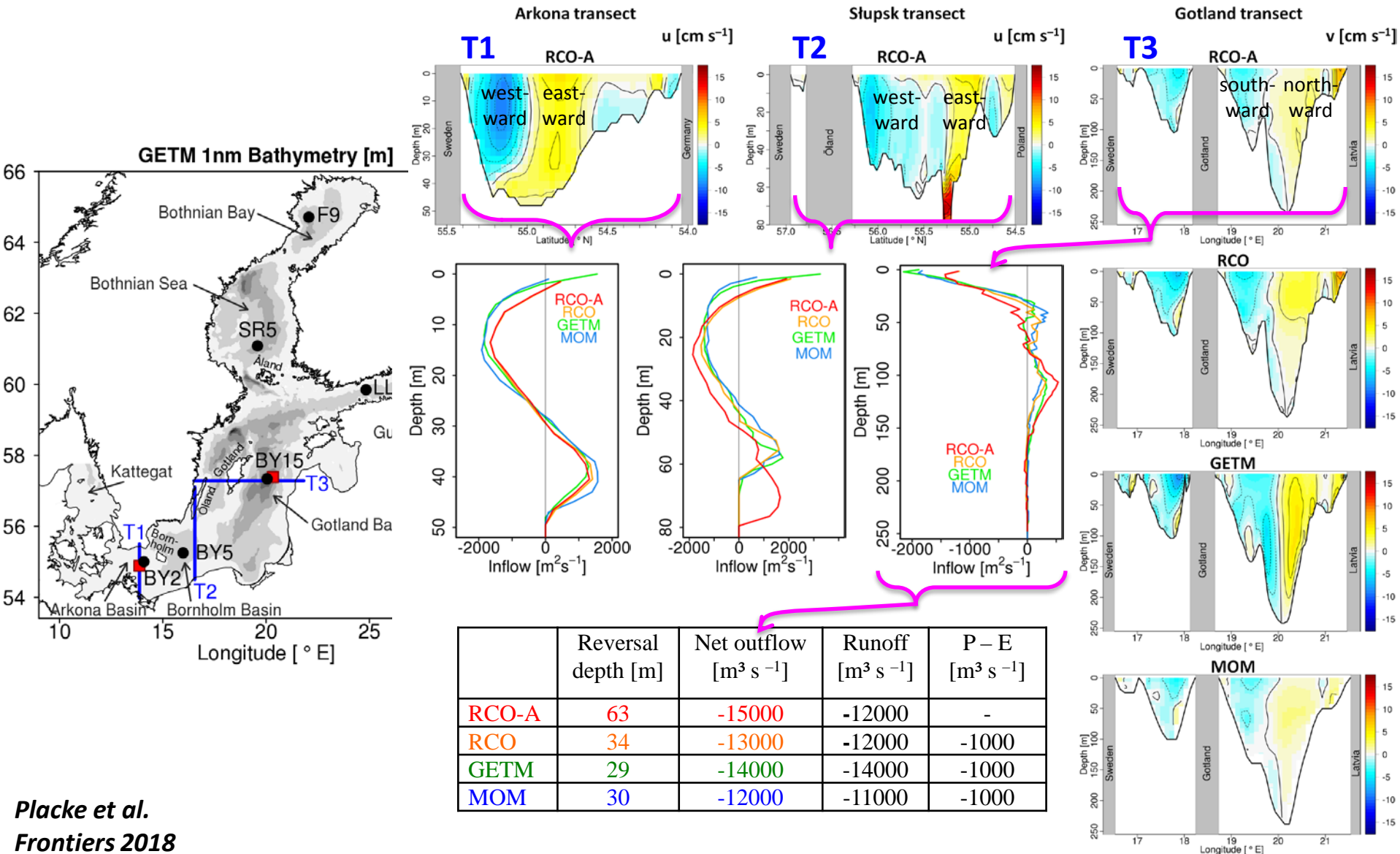
30-year  
mean depth-  
integrated  
volume  
transport



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### 30-year mean absolute current velocities through transects (1970-1999)



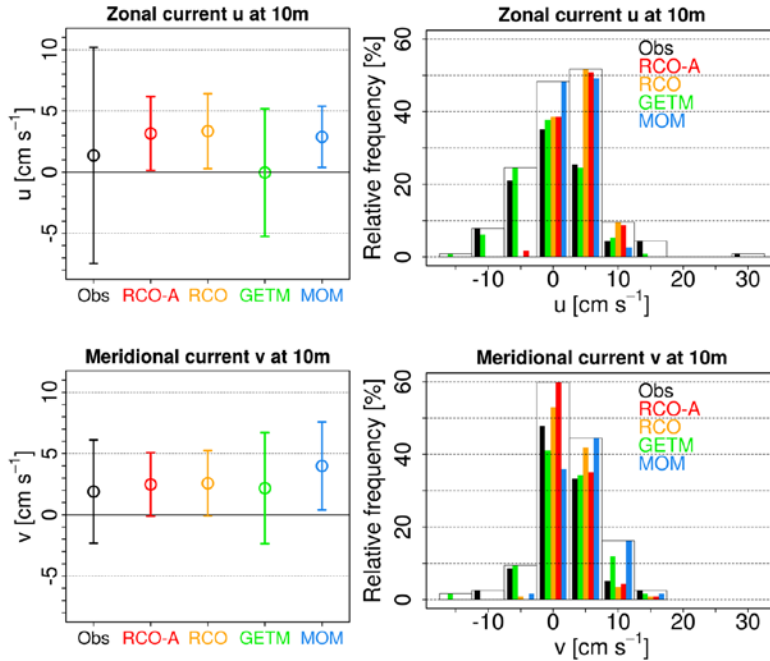


### ADCP (2005-2014)

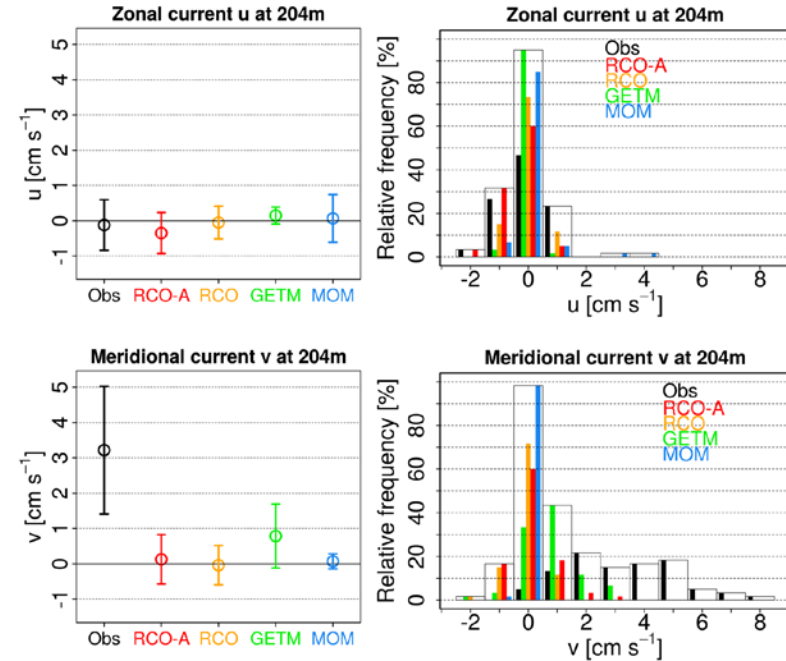
### Current meter (2000-2004)

Mean current velocities and their relative frequency

#### Arkona Basin



#### Gotland Basin





### Planned experiments

- assessing how good different models reproduce
    - hydrographic conditions (T, S)
    - mean circulation (u, v, volume transports)
  - focus on
    - processes (salt water inflows, upwelling, MLD)
    - meridional overturning circulation
    - ice extent
    - ...
  - no setup prescription for models (quality of models' results under their "standard conditions")
  - this would be advantageous:
    - same atmospheric forcing (UERRA, 1961-today)
    - same hydrological forcing (E-HYPE, 1978-today)
    - uniform data output and structure
    - output data on temporally and/or spatially variable grids should be post-processed (x,y,z,t)
- ➔ Different scientific questions, selected ones leading into a publication