

Should we fish younger or older cod?

Arni Magnusson, Jacob Kasper, Cecilia Pinto, Paris Vasilakopoulos,
Alejandro Yáñez, Knut Korsbrekke, David Miller

(ICES Methods Working Group)

Intro

Some Atlantic cod fisheries mainly catch young fish (ages 1-2)
but others target older fish (5-6)

How does this affect the long-term sustainable catch in tonnes?

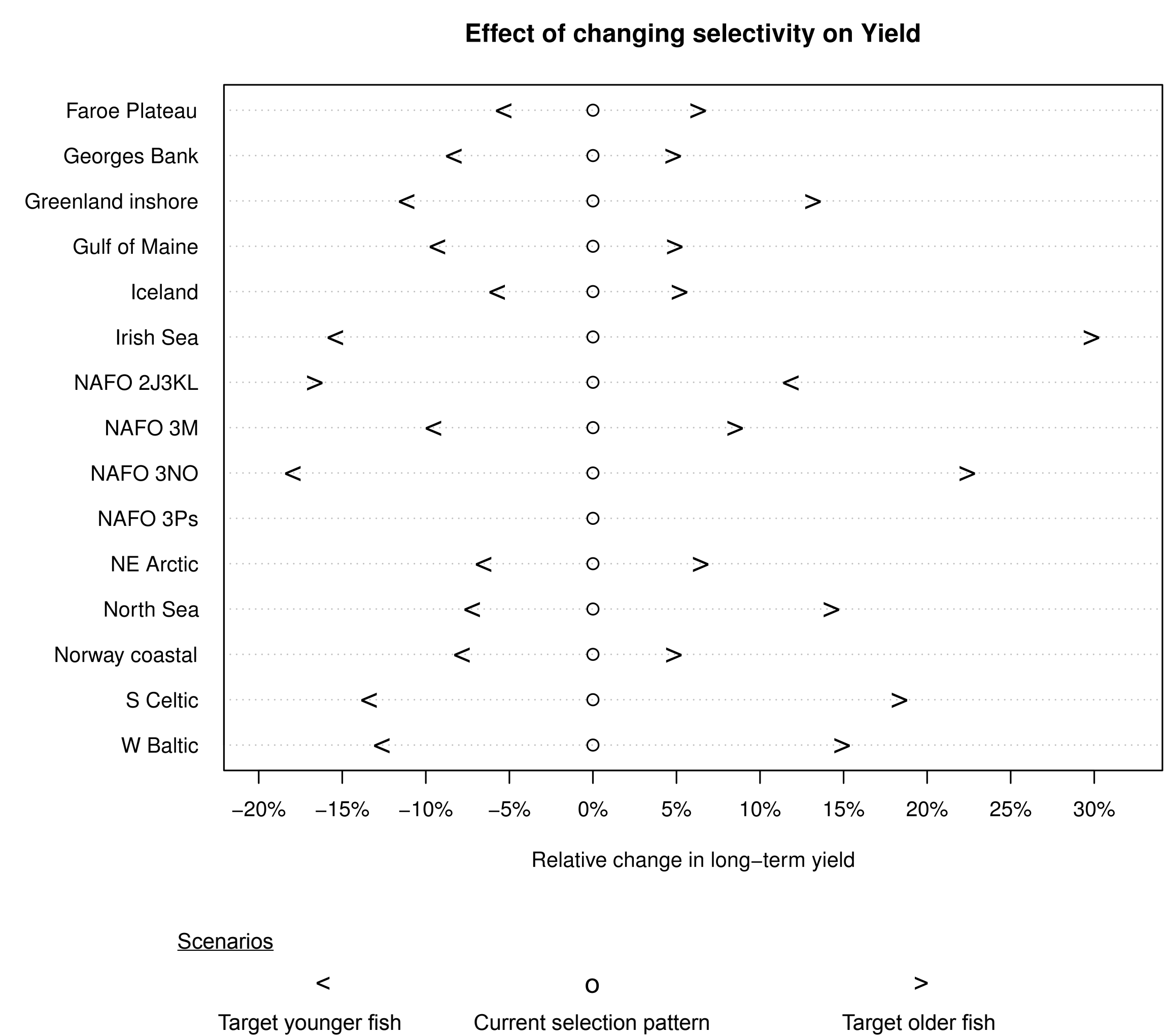
Methods

Stock	Catch (t)	Age at 50% Selectivity	Age at 50% Maturity	Weight at age 5 (kg)
Faroe Plateau	7 600	4.1	2.7	3.3
Georges Bank	5 900	3.0	2.3	3.8
Greenland inshore	17 100	4.3	4.3	1.6
Gulf of Maine	6 400	3.6	2.5	3.6
Iceland	204 000	5.4	6.4	2.5
Irish Sea	500	1.6	1.7	7.9
NAFO 2J3KL	3 700	6.3	5.3	1.6
NAFO 3M	9 300	4.6	4.0	2.2
NAFO 3NO	800	2.4	5.5	1.2
NAFO 3Ps	7 700	—	5.2	1.4
Northeast Arctic	758 000	6.5	7.0	1.7
North Sea	33 900	1.7	2.5	6.0
Norway coastal	44 400	4.7	5.2	3.3
Southern Celtic	4 200	1.6	2.2	9.3
Western Baltic	15 100	2.4	1.7	3.0

Data from the main 15 Atlantic cod stocks

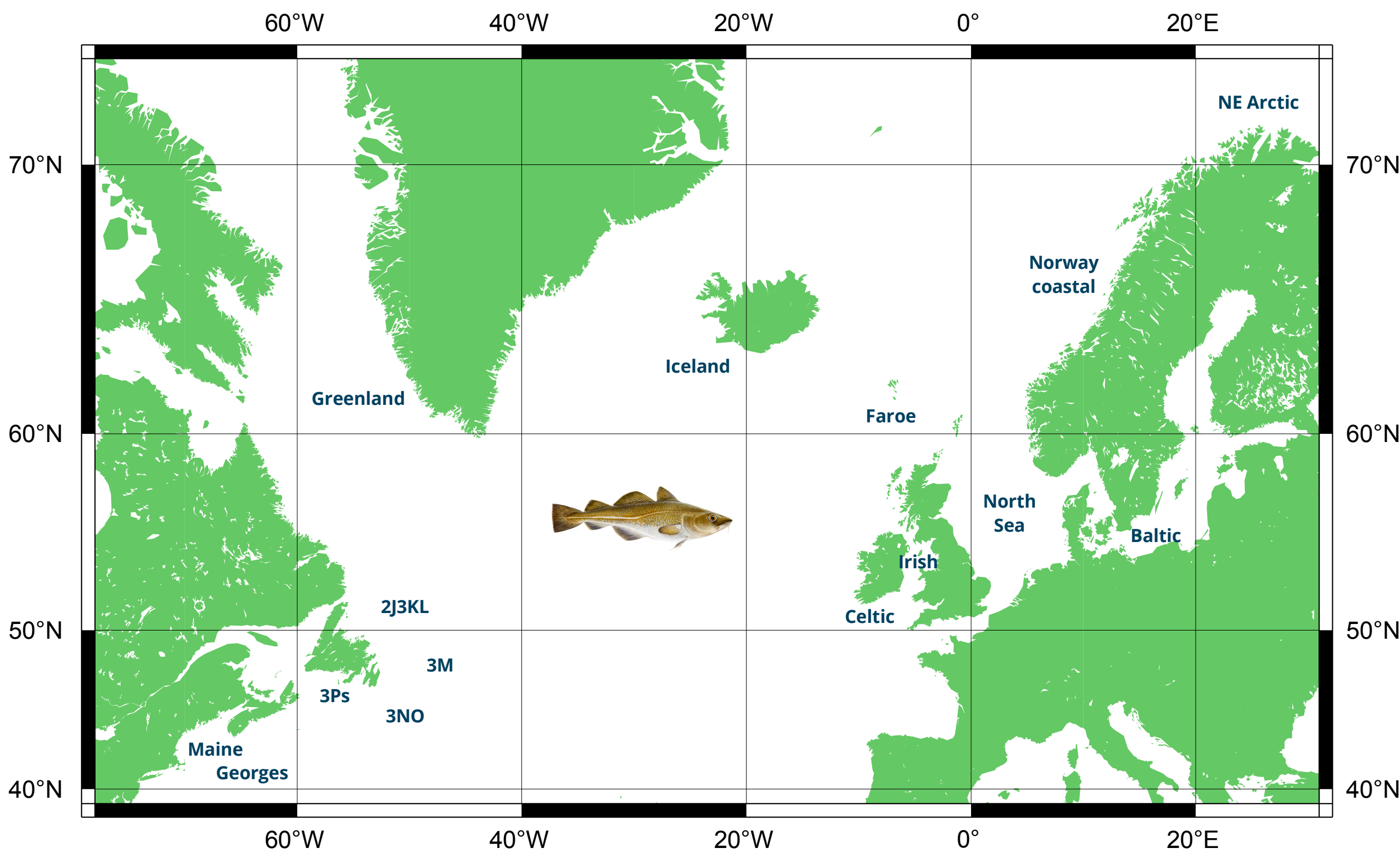
Use basic population model $N_{t+1} = N_t \exp(-Z_t)$
with $F_{0.1}$ to test alternative selectivity patterns

Results



Discussion

A similar approach can be used to analyze other species
sharing habitat with the cod



Fishing cod at an **older** age
would lead to **increased**
long-term **catches** and
stock size



Take a picture to visit
the project **homepage**

- read the abstract
- see more figures
- browse the data & code
- contact the Methods WG