# Protocol Eddy experiments (draft)

Get data from Nature run on layers or levels interpolated to grid + grid and bathy.

**Experiments:**

REF:

Freerun using the HYCOM Nature IC with eddy for 3 month

Exp 0:

-Sampling: 1 every 10 points for bathymetry deeper than 300m

-obs: SSH+prof, SSH only, prof only

-projections: Cooper-Haines, Statistics… whatever you have

-IC: flat isopycnal

-increment window: 6h

-assimilation: day 61 to 91 of Nature run

Exp 1:

-Sampling: 1 every 10 points for bathymetry deeper than 300m

-obs: SSH+prof, SSH only, prof only

-projections: Cooper-Haines, Statistics… whatever you have

-IC: Day 32 of nature run

-increment window: 6h

-assimilation: day 61 to 91 of Nature run

Exp 2:

-Sampling: 1 every 10 points for bathymetry deeper than 300m

-obs: SSH only

-IC: Day 1 of nature run

-increment window: 6h

-assimilation: day 1 to 91 of nature run

**Data to provide:**

For spurious internal wave:

* 3-D Hourly netcdf data (u, v, density/pressure anomaly) from Exp 0 with SSH only - on native grid with information of the vertical grid.

For eddy evolution:

* Bathymetry/grid (if changed)
* 3-D Daily means netcdf data (T,S,u,v,SSH) of your nature run on a z-cood grid (80 levels from HYCOM netcdf files, if too costly, we can find another common grid.)
* 3-D Daily means netcdf data (T,S,u,v,SSH) on a z-cood grid (80 levels from HYCOM netcdf files) of Exp 0 with SSH+prof, SSH only and prof only
* 3-D Daily means netcdf data (T,S,u,v,SSH) on a z-cood grid (80 levels from HYCOM netcdf files) of Exp 1 with SSH only

**Diagnostics:**

-SSH evolution

-innovations (vertical)

-Kinetic Energy

-cross-section 25.68N v-vel, T, S.