Stephanie Henson 5th December 2007

An automated eddy identification and tracking method was developed for application to satellite SLA data in the Gulf of Alaska (Henson and Thomas, In Press, DSRI). The method exploits the fact that eddies are regions of high vorticity, which stand out against a background of 'noise'. The same eddy tracking criteria were applied to weekly satellite SLA, monthly ROMS output and 3-day ROMS output. The following figures show comparisons of the spatial eddy distribution and eddy trajectories from each of the 3 data sources. The 3-day ROMS output is a great improvement over the monthly output, more closely emulating the spatial distribution of eddies and their long trajectories, particularly in the north-western Alaskan Stream region.

Figure 1a: Spatial distribution of eddies in the weekly satellite SLA data (presented as % time an eddy is located at any individual pixel), for the entire time series (1993-2006) and for each season. Thin grey line is 500m depth contour.

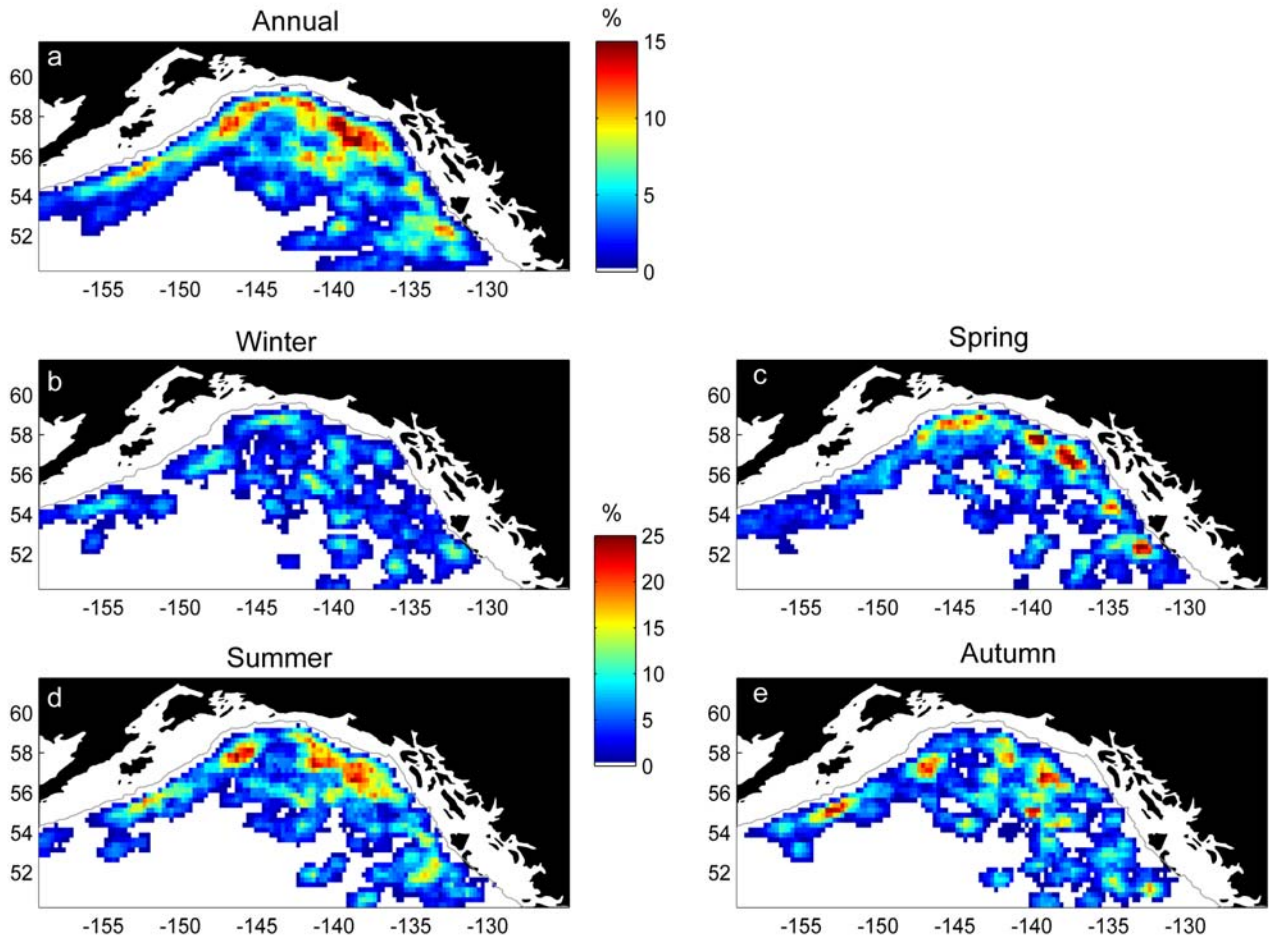

Figure 1b: Spatial distribution of eddies in the monthly ROMS output (time series from 1993-2005)

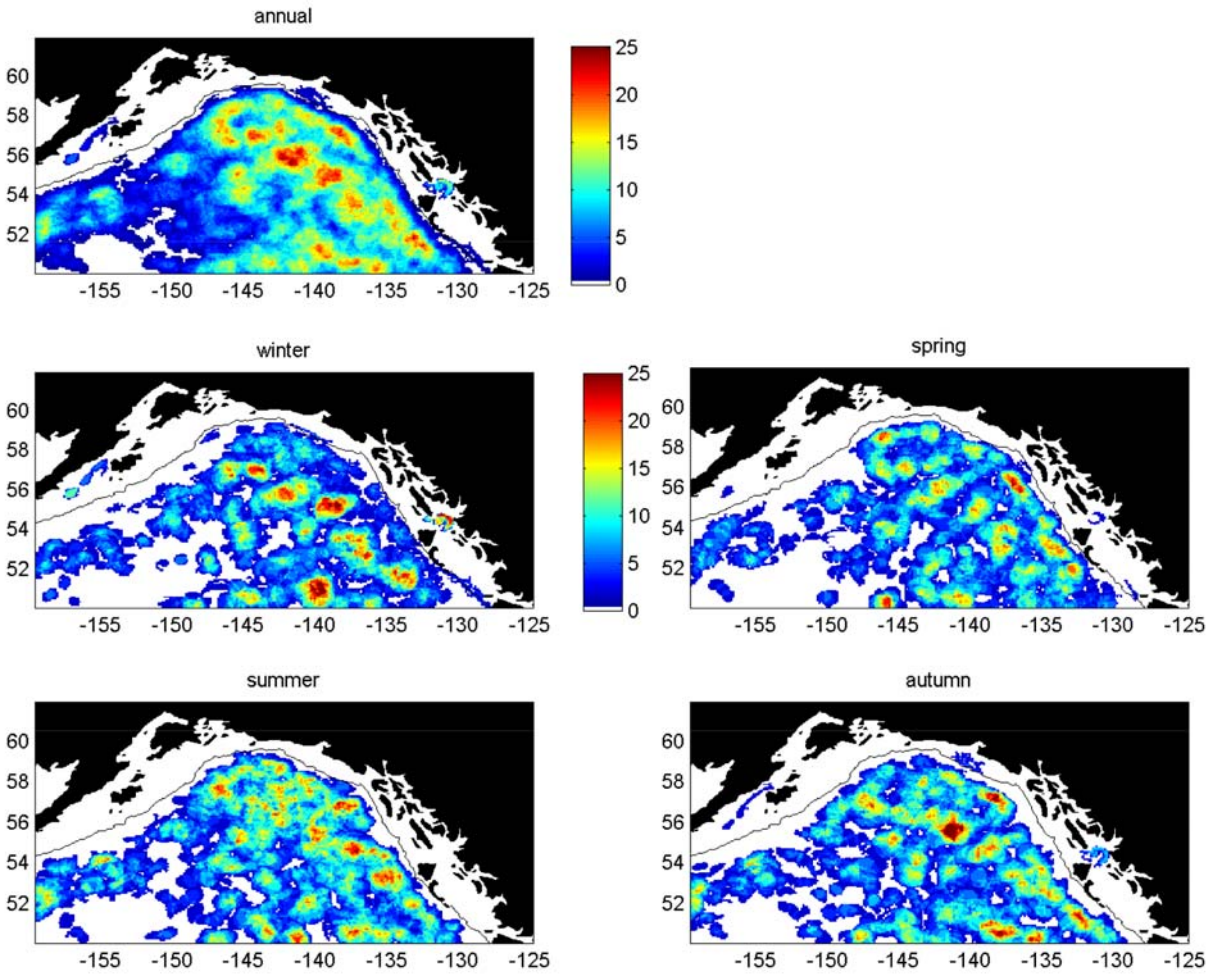

Figure 1c: Spatial distribution of eddies in the 3-day ROMS output (time series from 1993-2002)

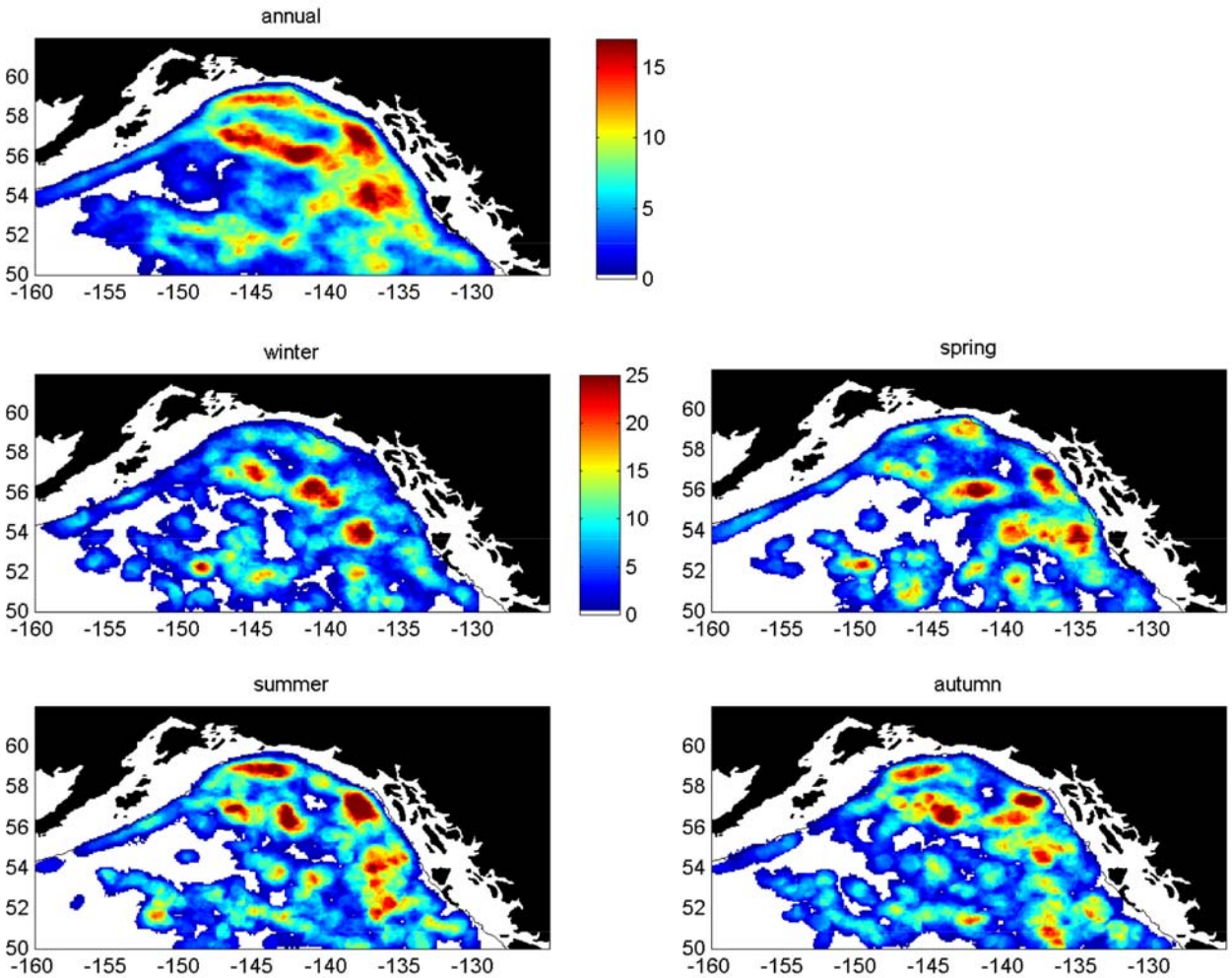

Figure 2a: Trajectories of eddies in weekly satellite SLA data. Grey line is 500m depth contour.

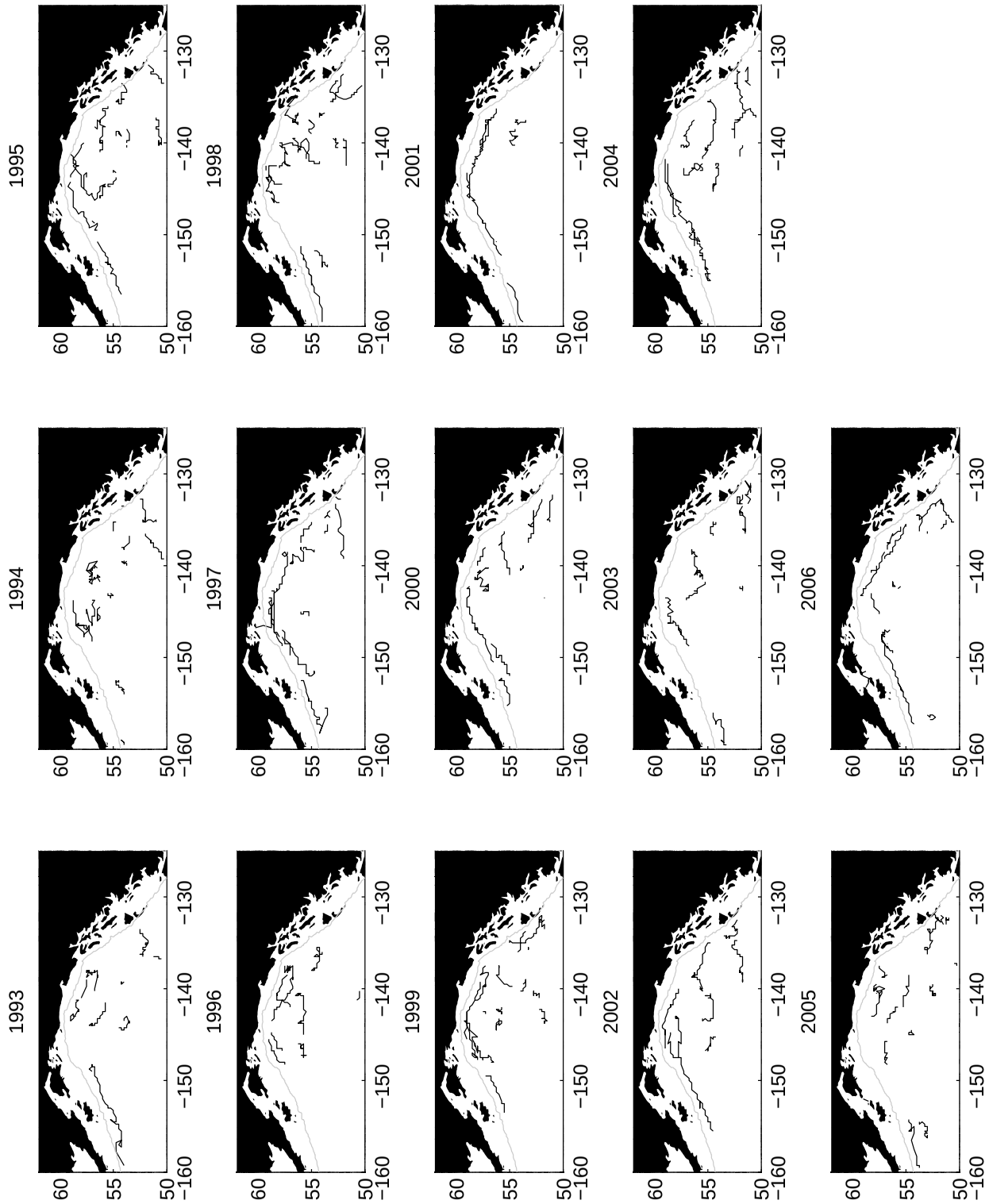

Figure 2b: Trajectories of eddies in monthly ROMS output.

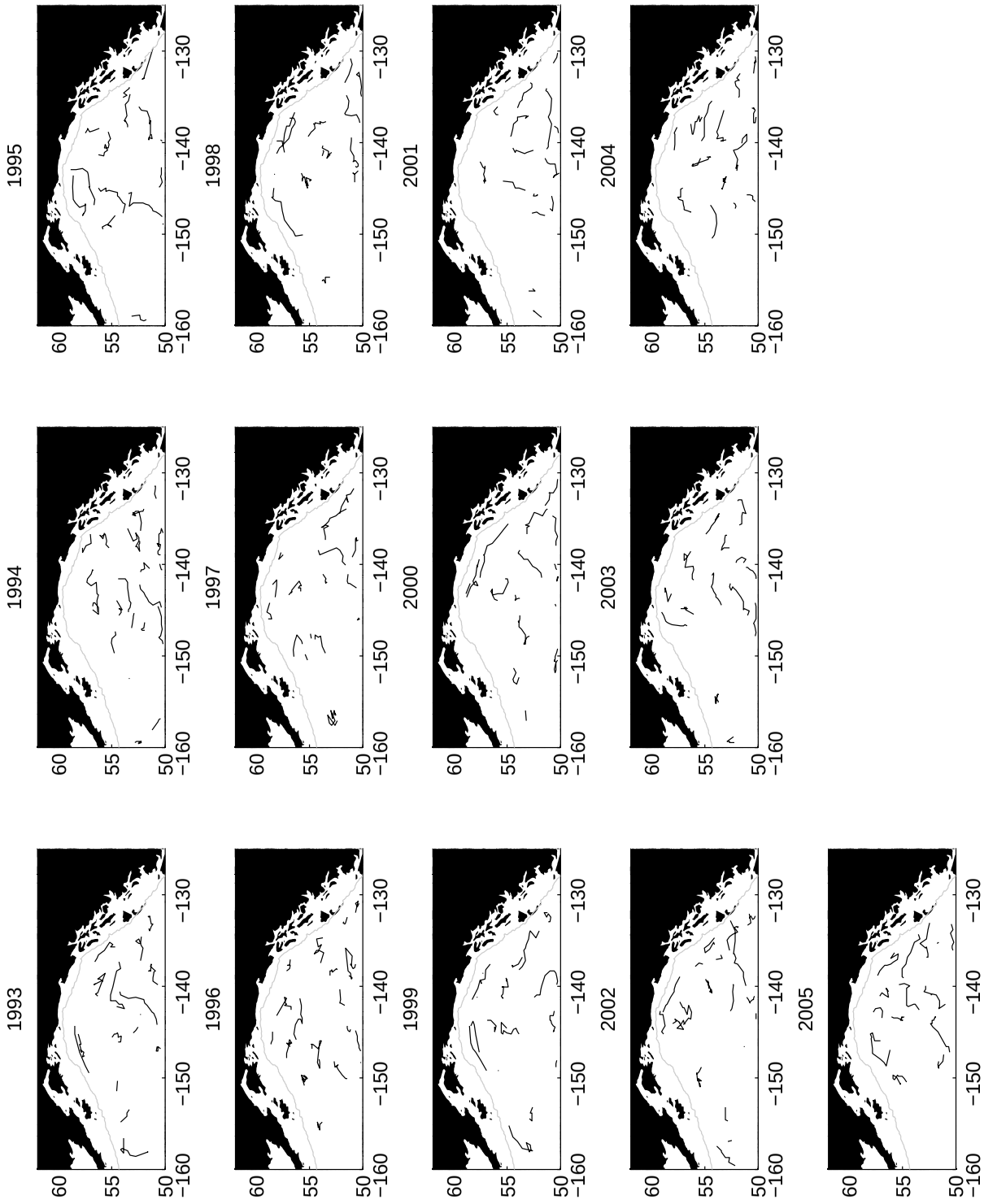

Figure 2c: Trajectories of eddies in 3-day ROMS output.