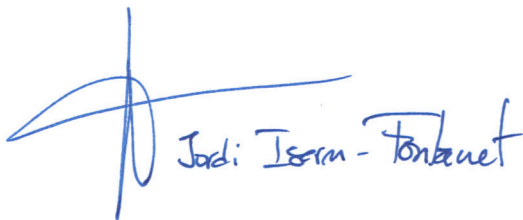Barcelona September 13 2016

Margarita Smolentseva has been working on the numerical inversion of Quasi-Geostrophic potential vorticity (QGPV) equation under my supervision during the period between March 8 and September 9 2016. Under the appropriate assumptions, this equation can be used to retrieve the three-dimensional velocity field of the ocean from satellite observations of Sea Surface Temperature (SST) and climatological measurements of vertical stratification.

Margarita has created, from scratch, a code in FORTRAN that implements the Successive Overrelaxation method for solving the QGPV equation, which is an elliptic equation. To validate this code, Margarita has compared its output with the solution obtained using the Fourier Transform method. Furthermore, since satellite observations and ocean numerical model input/output is done through NetCDF files, she has learned how to use the FORTRAN libraries necessary for this task.

In my opinion, Margarita has done an excellent work. She is a real hard-worker and she has been able to successfully solve all the technical and mathematical problems she has encountered during this period.

Dr. J. Isern-Fontanet