Contribution ID: **1**   Type: **Talk**

tidal rectification: sensitivity to disipative processes, consequences for numerical schemes

Wednesday 29 January 2020 11:00 (30 minutes)

We first discuss solutions for barotropic tidal rectifications in 1D configuration, with or without bottom friction. Exact or approximate solutions are found, which show a very strong effect of dissipation. Indeed, bottom friction for instance drastically changes the rectified current, even with very small bottom drag.
We thus also show that other dissipative processes, such as viscosity, can modify the rectified current.
As a result, we expect the numerical schemes and/or resolution (that fixes the order of magnitude of NUMERICAL viscosity) have a strong effect on the numerical solution of rectified currents. As a consequence, when numerical dissipation is above the physical one, the rectified current is spoiled.

Alternatively, we can estimate the viscosity associated with a resolution. This provides a way to calculate the minimum resolution needed to get a correct rectified current. It is very small in regions with strong tidal currents.

Do you need an official invitation letter?

No

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