

# The turnstile mechanism across the Kuroshio current: analysis of dynamics in altimeter velocity fields

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(Submitted on 1 Mar 2010)

In this article we explore the ability of dynamical systems tools to describe transport in oceanic flows characterized by data sets measured from satellite. In particular we have studied the geometrical skeleton describing transport in the Kuroshio region. For this purpose we have computed special hyperbolic trajectories, recognized as distinguished hyperbolic trajectories, that act as organizing centres of the flow. We have computed their stable and unstable manifolds, and they reveal that the turnstile mechanism is at work during several spring months in the year 2003 across the Kuroshio current. We have found that near the hyperbolic trajectories takes place a filamentous transport front-cross the current that mixes waters at both sides.

Comments: Nonlinear Processes in Geophysics 17, 2010 (in press)

Subjects: **Chaotic Dynamics (nlin.CD)**

Cite as: **arXiv:1003.0377v1 [nlin.CD]**

## Submission history

From: Ana Mancho [[view email](#)]

[v1] Mon, 1 Mar 2010 18:04:37 GMT (1036kb,D)

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