



## **Effect of Tehuanos on bipolar circulation in the Gulf of Tehuantepec, Mexico: surface drifters and satellite data**

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The Gulf of Tehuantepec is a region with strong wind pulses that blow in a normal direction to the coastline. These events are known as Nortes or Tehuanos and produces a supersquirt cold water and asymmetric bipolar circulation in the gulf. We analyze the formation and evolution of the bipolar circulation under weak wind events with maximum speed was  $\sim 12$  m/s, frequent conditions in summer. The first bipolar circulation was developed after two Tehuano events, the structure lasts  $\sim 7$  days; cyclonic eddy was attenuated and anticyclonic was intensifying and spreading towards the southwest until reaching  $\sim 150$  km ( $\sim 1$  m/s) of radius (speed). Bipolar structure was described by 13 drifters for a period of 70 days. Correlation between the components of velocity of drifters and satellite data was high ( $r > 0.7$ ). After the bipolar formation other Tehuano events were presented, weak and short, which apparently did not modify the kinematics of the eddy. The greater deformation of the anticyclonic eddy was due to the interaction with the presence of a second dipole. The latter was triggered by an event Tehuano, later the events was absent. The evolution of the anticyclonic eddy was similar to that described in the first dipole; while the cyclonic strengthened and migrated towards the northwest interacting with the coast and its anticyclonic counterpart and the anticyclonic eddy increases its speed of translation twice (40 km/day). Finally the cyclonic eddy is degraded by the formation of a third dipole. After the bipolar formation is presented a series of Tehuanos. The increase in kinetic energy and vorticity was consistent with the events. Under these conditions only the anticyclonic was intensified and propagated, while the anticyclonic remained in the east of the gulf.