#### **3D Views of GOM HYCOM**





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## **3D Trajectories in a Loop Current Ring**



Particles launched along this line



Three day trajectories computed from daily archived (u,v,w) from the GOM HYCOM model



#### **3D Trajectories in a Loop Current Ring**





Three day trajectories computed from daily archived (u,v,w) from the GOM HYCOM model



### **3D DLEs in the Gulf of Mexico**





2D DLEs computed at each model depth.

Sections show 2D DLEs "stitched together" in the vertical.

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#### **3D DLEs in the Gulf of Mexico**

30°N --50 -100 -150 -200 28°N -£ -250 -300 -350 -400 26°N --450 -500 20 N 22 N 26 N 28 N 24 N 30 N 24°N -**West-East Section** 22°N -50 -100 -150 -200 20°N **듩** -250 -300 -350 -400 18° N 90°W 96°W 93°W 87°W 84°W 81°W -450 day-1 0.5 0.0 -500 -1.0 -0.5 1.0 96 W 94 W 92 W 90 W 88 W 86 W 84 W 82 W

GOM HYCOM at 20m

**South-North Section** 

2D DLEs computed at each model depth.



Sections show 2D DLEs "stitched together" in the vertical.

#### 2D vs. 3D DLEs

	2D DLEs	<b>3D DLEs</b>
2D trajectories	No w No v <sub>H</sub> gradients	No w v <sub>H</sub> gradients
3D trajectories	w No v <sub>H</sub> gradients	w v <sub>H</sub> gradients



### **GOM HYCOM Vertical Velocities**





Maps of vertical velocity moving downward layer by layer through the water column.

# GOM HYCOM d(v<sub>H</sub>)/dz





Maps of vertical gradient of horizontal current speed moving downward layer by layer through the water column.