

Synoptic Water Circulation Pattern Summary

Water circulation in the Salton Sea varies dramatically in time as storm events pass through the system. Circulation patterns also vary in space, with dramatic changes evident between the northern and southern basins.

In general, water velocities were much higher in the southern basin. This is evident by examining ADCP time histories shown in Figures 4.2 and 4.3, and is caused by higher surface winds in the south. Water velocities near Site 1 reached 21 cm/s during the October 24 storm event, while in the northern basin, water velocities rarely exceeded 6 cm/s. Differences in surface wind patterns can be observed by comparing Figures 4.37 and 4.38, and is most evident during the October 24 storm. The peak squared wind magnitude at Site 1 is four to five times those at Site 5.

October 24 1997 at 9 p.m.

Figure 4.48 shows mid-depth model generated velocity vector contours on several days during the simulation period, while Figure 4.49 shows velocity vectors on October 24 from a three-dimensional perspective. In all of these figures, a large counter-clockwise gyre is evident in the southern basin. This gyre fills the entire southern basin, and the center lies over the deepest portion of the basin. This gyre is set into motion by the wind flow through the basin and is further developed by the basin's conical shape.

In the northern basin, winds are generally much smaller, generating in turn water velocities that are much smaller than in the southern basin. Because the velocities are small in the northern basin, their directions tend to be rather chaotic, driven primarily by small-scale turbulence conditions. A consistent gyre or other flow pattern was not evident in either model results or ADCP data in this basin.

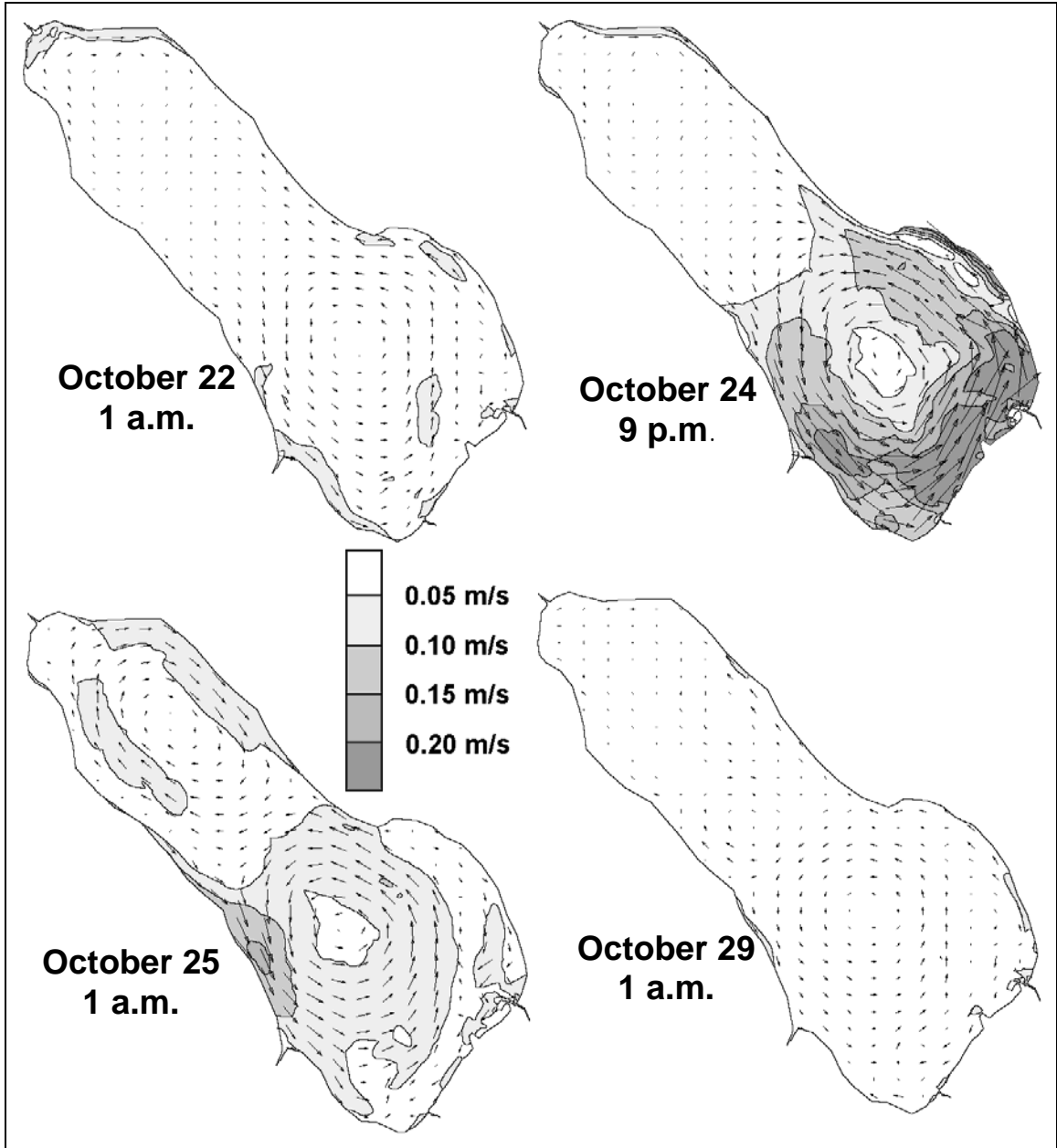


Figure Error! No text of specified style in document..1 Mid-depth Water Velocity Results.

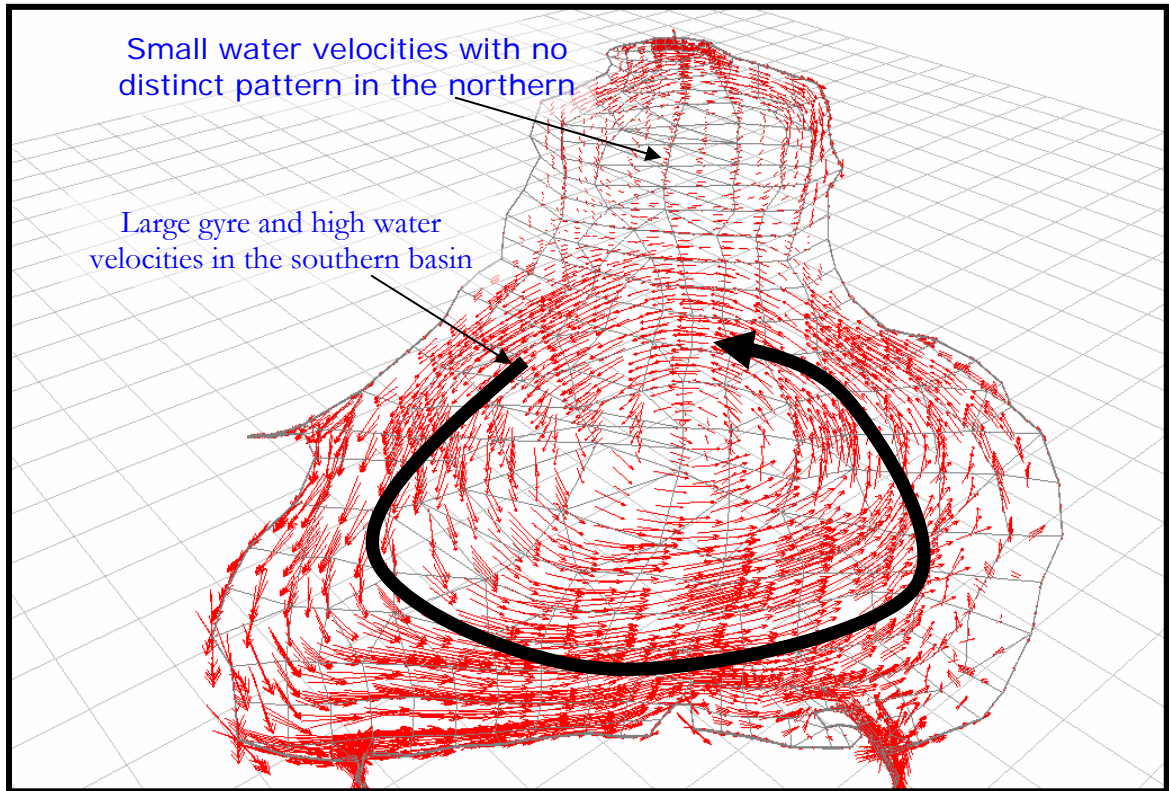


Figure Error! No text of specified style in document..2 Three-Dimensional Perspective of Water Circulation.

October 24 at 9 p.m.