

Example of the use of the Salt Lake TDWR: Detection of the 3 May 2000 lake breeze

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The land-lake breeze (LB) circulation around the Great Salt Lake is an important weather phenomenon in northern Utah. For example, the LB affects air traffic at the Salt Lake International Airport and is a focusing mechanism for thunderstorms.

This TA LITE gives an example of how the local Federal Aviation Administration Terminal Doppler Weather Radar (TDWR) can be used to monitor the LB, and thereby supplement the more distant WSR-88D. [Figure 1](#) shows the locations of the 2 radars. The WSR-88D, atop Promontory Point, is also 2300 ft higher than the TDWR ([Fig. 2](#)). (Note: the previous figures are from a paper in review about the Salt Lake City tornado.)

[Figure 3](#) shows surface data from the University of Utah's Mesowest network at 2100 UTC. Note the convergence south and southeast of the Great Salt Lake, indicating the lake breeze. A TDWR image from the 1.0 deg tilt ([Figure 4](#)) at 2100 UTC also shows weak convergence (red-green boundary). Recall that the winds are nearly perpendicular to the TDWR so the radar cannot see the maximum winds. A corresponding WSR-88D image from the lowest 0.5 deg tilt, shown in [Figure 5](#), shows little signs of the convergence as the beam is ~5000 ft above Salt Lake City.

In summary, the local Salt Lake TDWR can be used to monitor the position of the local lake breeze.