

Use of high-resolution satellite images to detect and monitor change on exposed delta shorelines of the Salton Sea

As is well known, a major concern with the lowering of the Salton Sea's water level is the potential impact that new exposed playa like lake-bottom surfaces might have on air quality due to the increase of dust (and salt) sources. It will be several years before the effect of diverting water to urban areas begins to have a dramatic impact on the water levels around the lake, however, the lake's water level is already lowering enough that existing delta areas are becoming larger. The increasing size of the deltas could potentially start to have an impact on the regions air quality, including nearby local areas. Therefore, it is important to start investigating way to detect and monitor change on critical near-shore habitats around the lake, including existing deltas.

In order to show the potential of using very-high resolution (0.6m) satellite images to map and monitor the near-shore region in critical areas around the lake, including deltas, small portions of two satellite images are shown below. They can be used to not only map the total amount of area covered by the deltas at a given time, but more importantly detect and map the change in amount of area covered by deltas and identify where change has occurred. These images were collected on December 25, 2002 and January 12, 2006 and cover the area around the New River on the southwestern part of the lake (including the delta at the northern end of the river). It is easy to see the increase size of the delta and changes in vegetation cover (which could be important for bird habitat monitoring) in the multi-temporal image pair.

This is an example we recently put together and have not had the time to check the lake's water levels during the times when the images were collected, which will be important to document. Since the images were collected at approximately the same time of year the amount of water input is probably similar during the two dates (this will need to be confirmed), therefore, the increase exposed playa area is probably not due to differences in the amount of runoff that can occur during different times of the year.

Pat Chavez
December 3, 2007



250 meters

New River Region of the Salton Sea - Quickbird Satellite Image
January 12, 2006





250 meters

New River Region of the Salton Sea - Quickbird Satellite Image
December 25, 2002





250 meters

New River Region of the Salton Sea - Quickbird Satellite Image
January 12, 2006





250 meters

New River Region of the Salton Sea - Quickbird Satellite Image
December 25, 2002

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