River Fans on Earth and Mars Transcript

In this video, we're going to take a look at fans in Death Valley and explore how they form and then travel back to Gale crater and fly down into the rover site and explore the relationship between the fan and the landing site, as well.
So we will begin with a flight into Death Valley. We've outlined it in white, the boundaries of six alluvial fans that we fly into and see outlined; four facing us, and two at our feet.
The ones facing us are steeper and come out of a steep canyon.

Note the fan shape. The lateral boundaries spread like a fan that we use to cool ourselves.

Now we fly into the headwaters of one canyon and see how the channel spills out of the canyon and the sediment and water comes rushing out, travels to the left and travels to the right, depositing as it does so.

Shifting….shifting…shifting….sediment depositing…..the river moving over….depositing…river moving over.

Now we're crossing to the other fan that was at our feet and now we're going to settle down and look back at the two fans: the one steep one towards us, the gentle one at our feet.

This is Gale crater and we're flying toward the Curiosity landing site (pause).

On the image you'll see a red line delineating the boundary of an alluvial fan and the blue delineates fossil channels.

And the foreground now, you'll see a canyon that's some 18 kilometers long, 30 meters deep, 600 meters wide.

That sediment is eroded and deposited in a fan-shaped deposit by a series of channels.

Here we count about 24 separate fossil channels that played a role in building the fan that we're flying over. And on the rise, you see the "X" marks the position of the Curiosity rover.
This fan was built by erosion then of sediment in the canyon wall that was brought out and spread out across the crater floor.

This is now looking from Curiosity back at the fan and you an see that it would be about a two to four mile hike or three to six kilometer walk from the nearest channel to where Curiosity rover is sitting and looking at the entire system.

Then we see this watershed and this water has cut a deep canyon, spread sediment across the crater wall and then deposited sediment, perhaps, as far as the Curiosity rover itself, where we've now recognize water transported gravel.