



Planetary Science

Low Angle Impacts

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On Earth we typically find craters that are circular and shallow, primarily by modification, but it's interesting because when you go to the other planets you find a wide range of shapes and sizes of craters, so we can learn a lot by looking at other planets like Mars.

This image shows a picture of an oblique impact on Mars, in fact Mars has more than its share of oblique impacts. We don't know why but the point is that we do see them.

And here is an example on the Earth, in this case the Rio Cuarto impact structures in Argentina.

What we have here is an impact that occurred maybe two thousand years ago or less.

And in this case it was not just a low angle; it was a very low angle impact, maybe ten degrees.

For Rio Cuarto we know that most of this energy did not go into the ground.

The layer of sand at Rio Cuarto is only about 30 metres deep, and it looked like it just barely penetrated that layer. That means that almost all the rest, and this is with an object that is 100-300 metres across, which means that almost all of that energy, the rest of that energy, went into the atmosphere.

So the question is – did it change the composition of the atmosphere? Did it draw in materials? Soot? Did it create more N_2 , NO during the massive shower that would have been produced? We really don't know, that's why the date is so critical.