Double Depressions or Expanded Craters on the Northern Plains

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This image covers part of the vast northern plains of Mars, in a region called Utopia Planitia. How did these double depressions form? Once idea is that the inner depressions correspond to impact craters, or the floor deposits of impact craters. These are likely secondary craters that all formed at the same time from the ejecta of a much larger primary crater. The high latitude regions of Mars are known to be rich in water ice below a shallow dry layer. The dry layer protects the ice, which would otherwise sublimate (going directly from a solid to a gas) into the air and disappear.

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