Imaging of e2e SAG Reference Landing Sites

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First landing Site Workshop: Possible Joint Rover
February 29, 2012
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Reference Landing Sites

Site	Lat (°N)	Lon (°E)	Elev. (km)	Description
Gusev Crater *	-14	175	-1.9	Hesperian olivine-rich basalts embay the Noachian Columbia Hills, which contain outcrops of opaline silica likely produced from hot springs or geysers and outcrops rich in Mg-Fe carbonates likely precipitated from carbonate-bearing solutions. Sulfate-rich soils and outcrops also are present along with several different igneous rock types with minimal alteration. Landing Site for MER Spirit Rover
Jezero Crater	18.4	77.6	-2.6	elevation to east. Delta incorporates phyllosilicates. The crater formed in Noachian olivine and pyroxene-rich crust. The floor has a more recent unit (Hesperian?) that looks like volcanic flows that embay the delta. Would land on volcanic and traverse to delta, but rocks on volcanic surface in likely landing ellipse a concern for MSL candidate site.
Nili Fossae Trough *	21	74.5	-0.6	Landing ellipse on floor of Trough with land on access to likely Hesperian volcanics and diverse minearlogies in Hargrave crater ejecta (including carbonate-bearing materials). Widespread altered materials to west of ellipse in canyon eroded into western wall of Trough. Elevation is -0.6 km and exceeds current limit for 2018.
Mawrth Valles Site 0	24.5	339	-3	Layered Phyllosilicates in poorly understood setting. unaltered volcanic materioals within ~50 km in Oyama crater. Possible mud volcano in the vicinity. Terrain displays more relief than candidate MSL landing site to the east.
E. Marg. Terra *	-5.6	354	-1.3	possible chlorides stratigraphically overlain by an eroding unit with very strong CRISM and even TES signatures of phyllosilicates. Appears capped by a basaltic unit of Noachian age (in situ?). Relief in ellipse was challenging for MSL candidate site.
NE Syrtis Major *	16.2	76.6	-2.1	Extensive and diverse mineral assemblages with Syrtis Major volcanic nearby. Maybe fluvial deposits, but any lacustrine only in small local basins. Relief in ellipse was concern for MSL candidate site. Land on diverse altered minearlogies, but volcanics are go to.
Ismenius Cavus	33.5	17	-~3	Single site to combine clay-bearing paleolake sediments and current glacial deposits. Three deltas (in blue) at the same elevation=> Confirms paleolake. Great site for both geological "field work" and sampling. Least imaged and most northern of sites. Putative ice-bearing deposit may be Planetary Protection concern.

*well imaged &/or well characterized

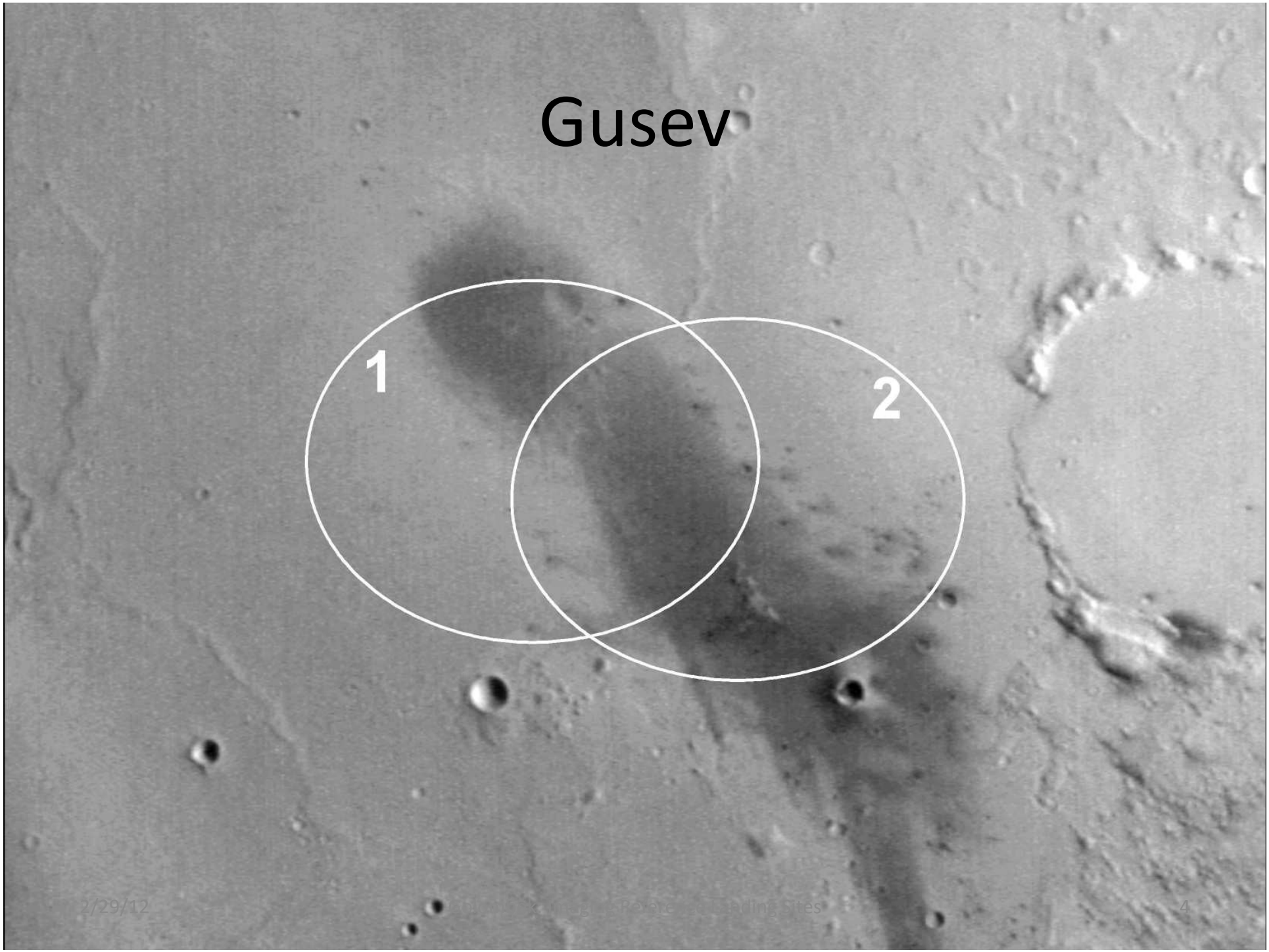
From e2e SAG

Ellipse Locations

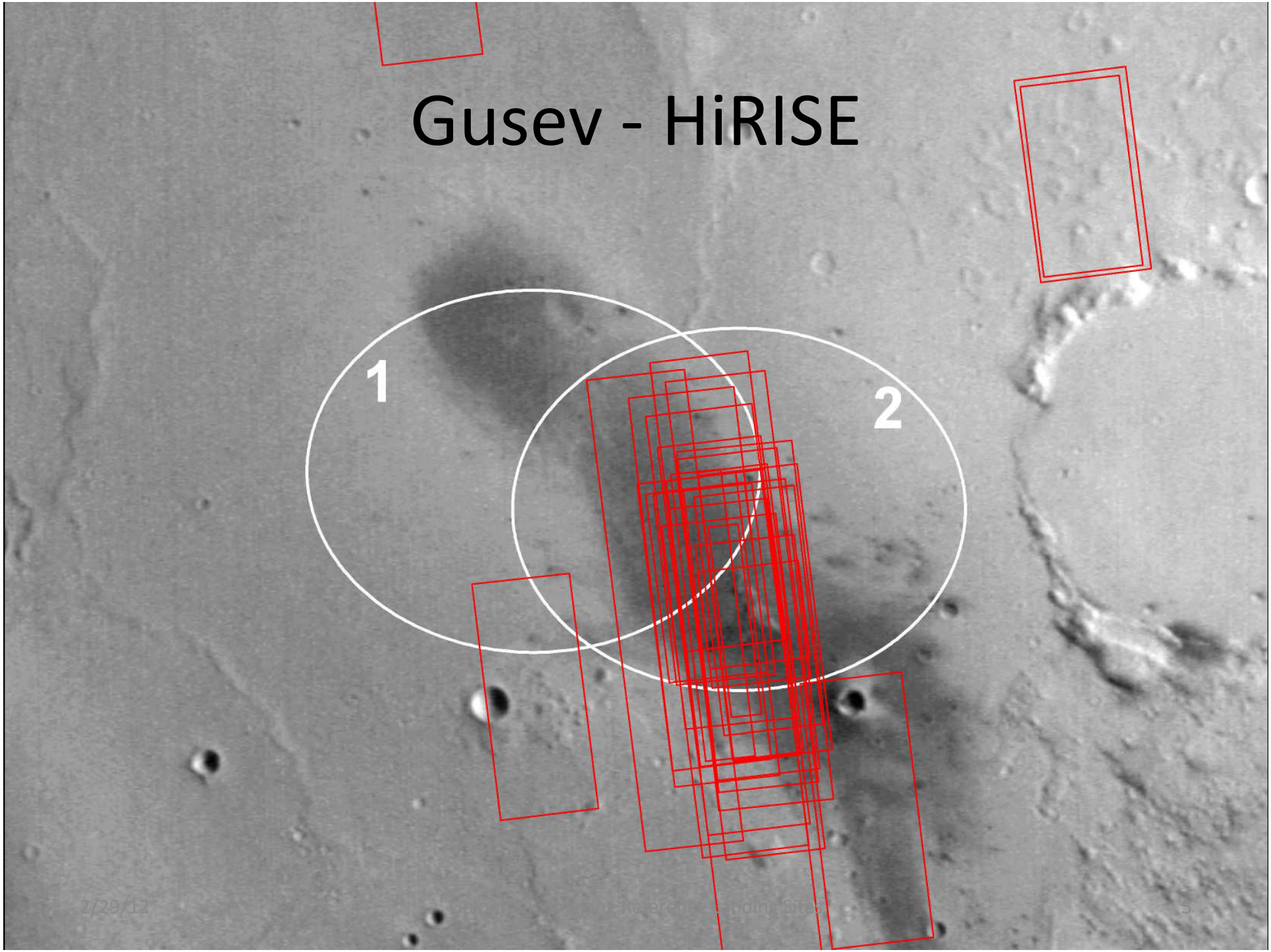
		Gusev	Ismenius	E Margar	Jezero	NE Syrtis	Nili Fos	Mawrth
Long	(1)	175.3395	17.171	-6.1777	77.5945	77.0767	74.481	-21.1343
Lat		-14.4848	33.8202	-5.6446	18.3628	17.8034	21.0108	24.5537
	(2)	175.5309						
		-14.5203						
MOLA Elev		-1890	-3508	-1252	-2656	-2033	-553	-3003
		-1942						

Coordinates, MOLA Planetocentric
Longitude, +°E
Elevation in m wrt MOLA Geoid

Gusev



Gusev - HiRISE



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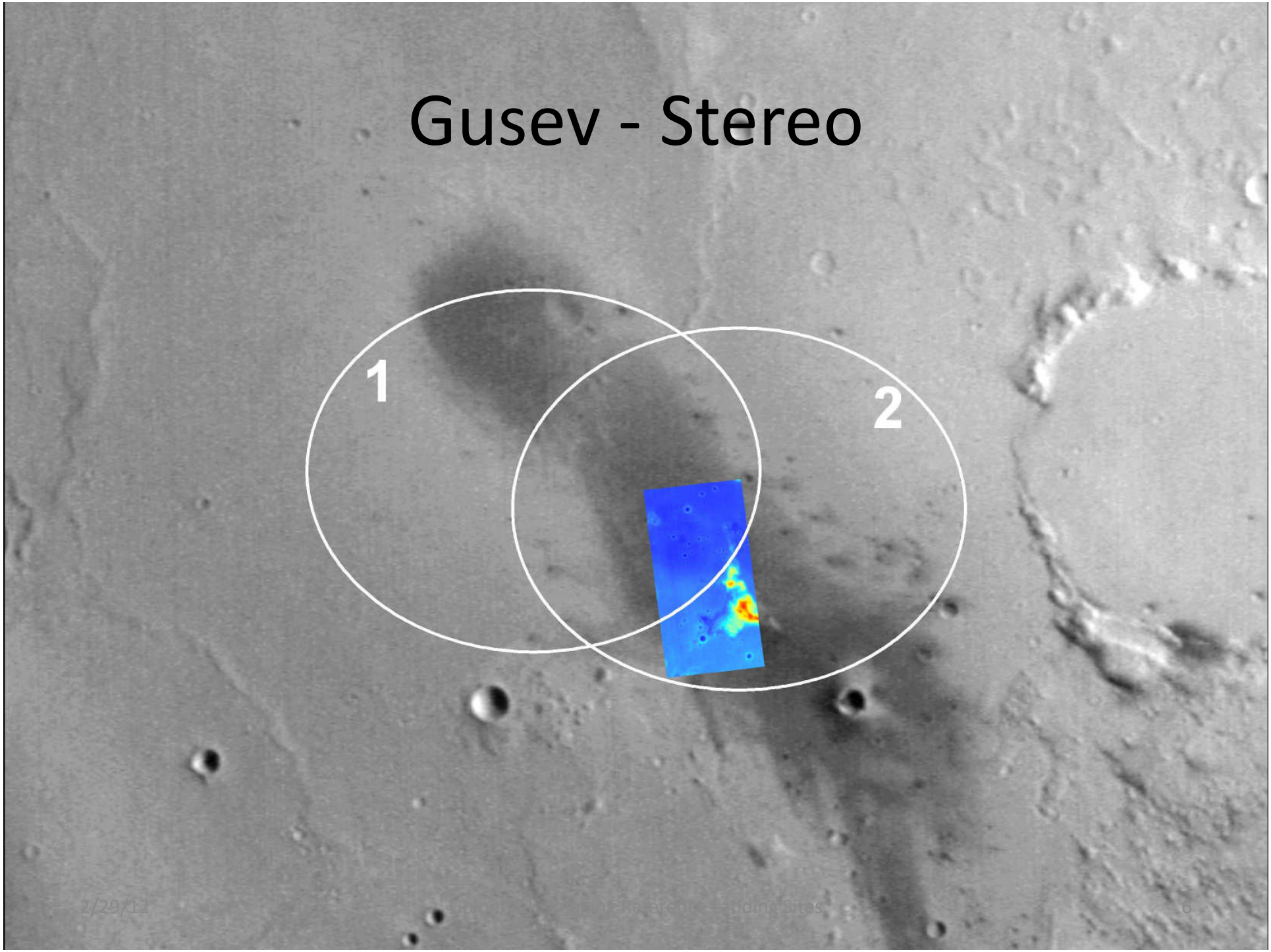
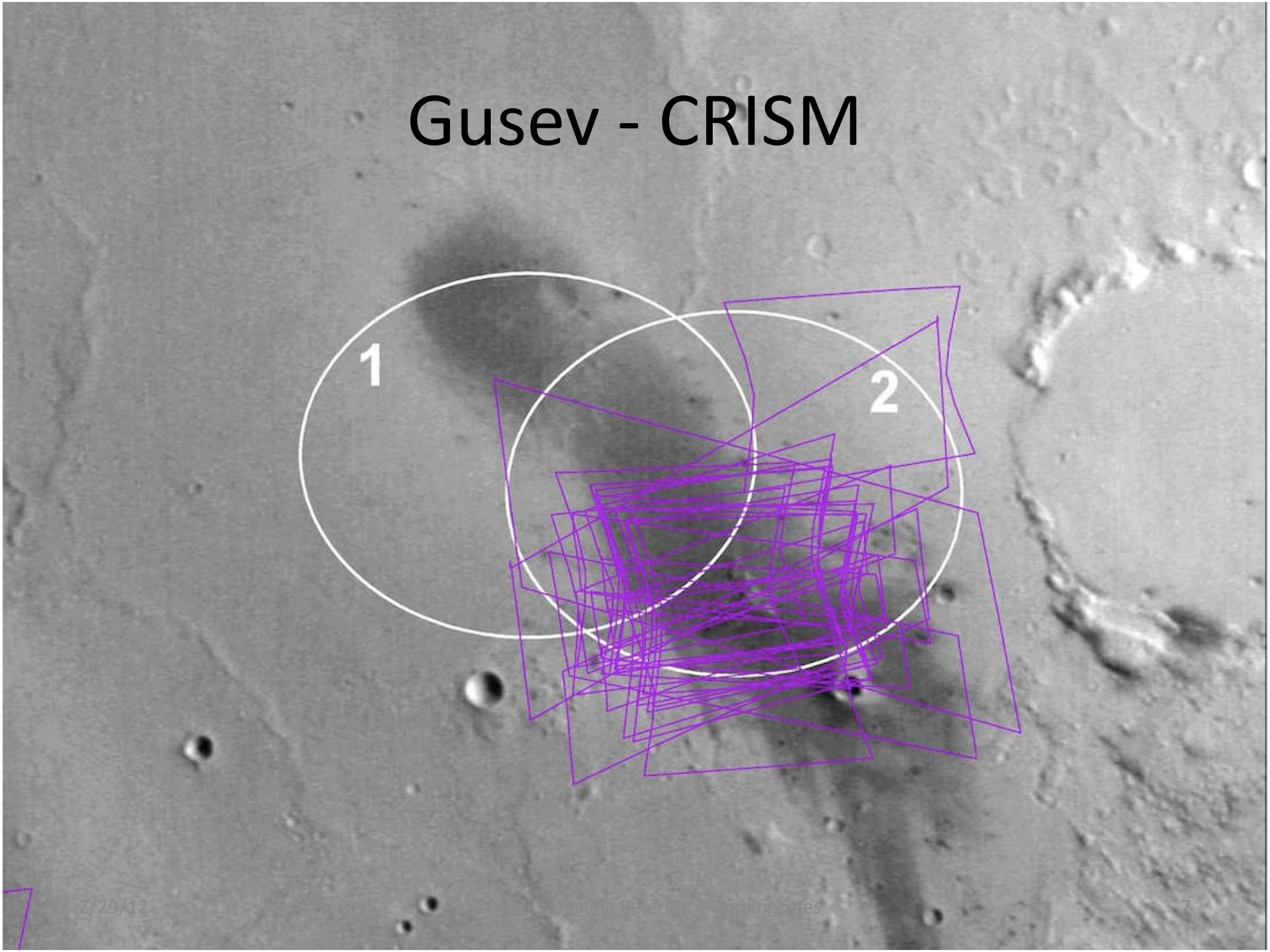
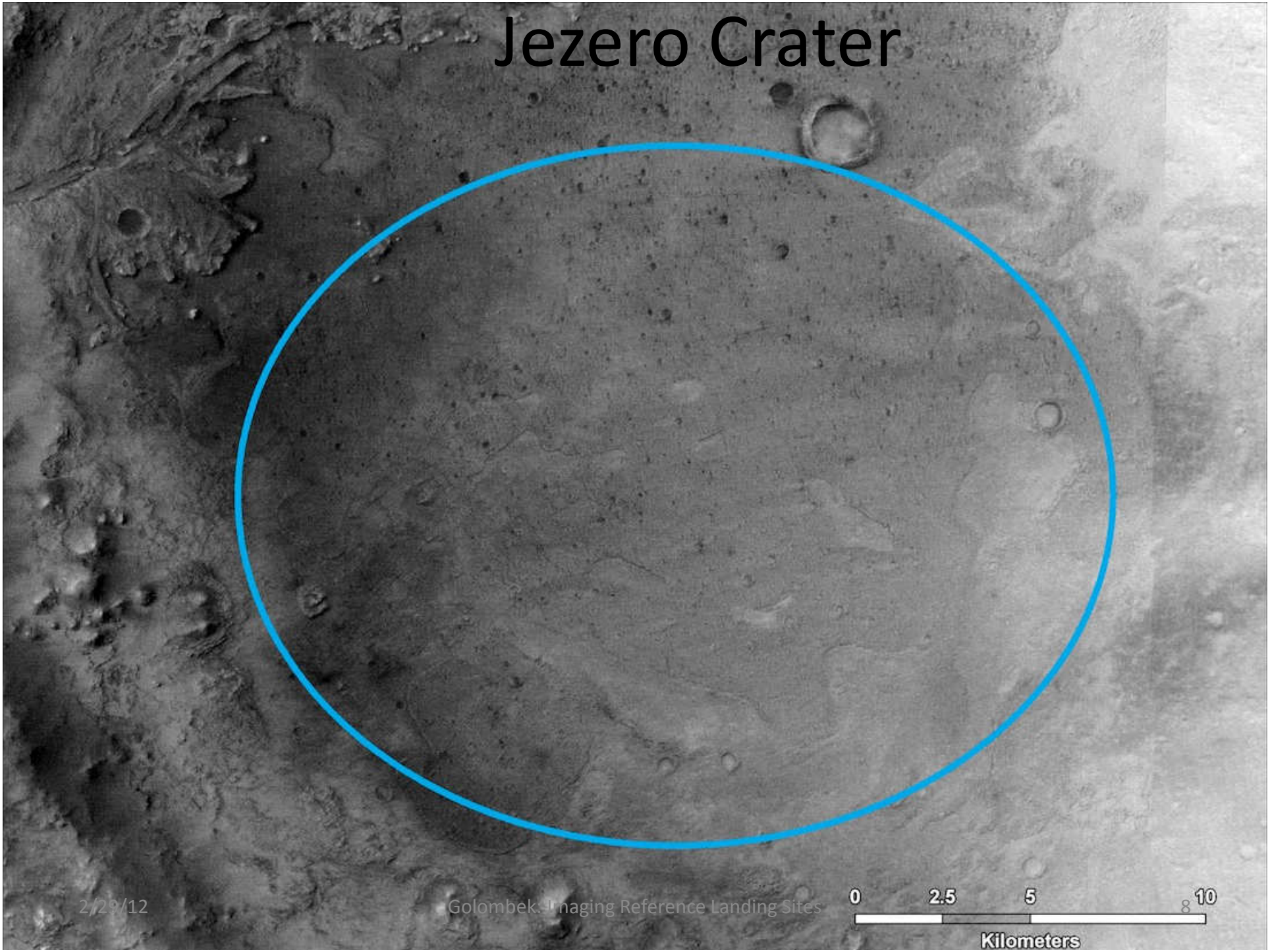


Gusev - CRISM



Jezero Crater



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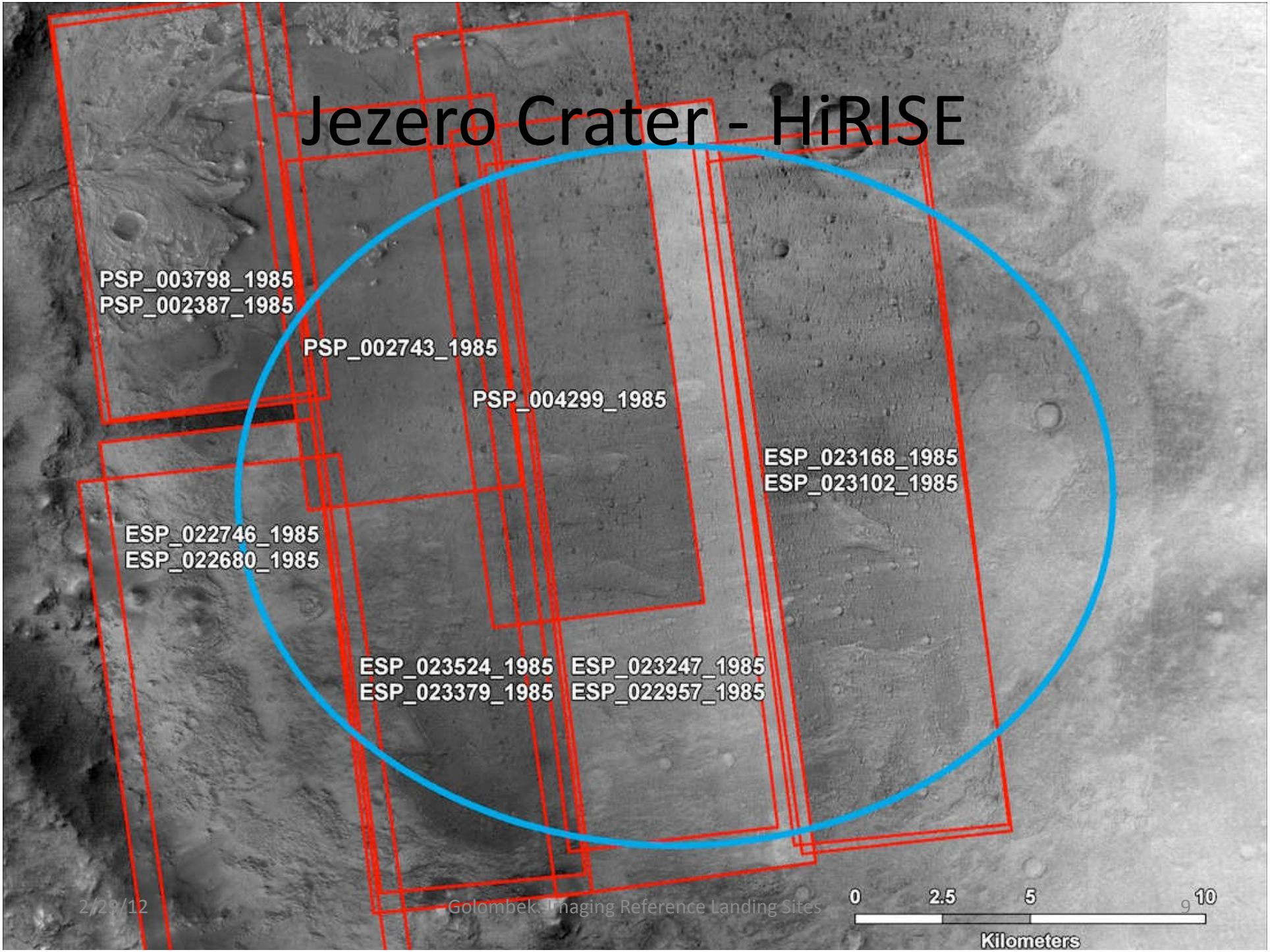

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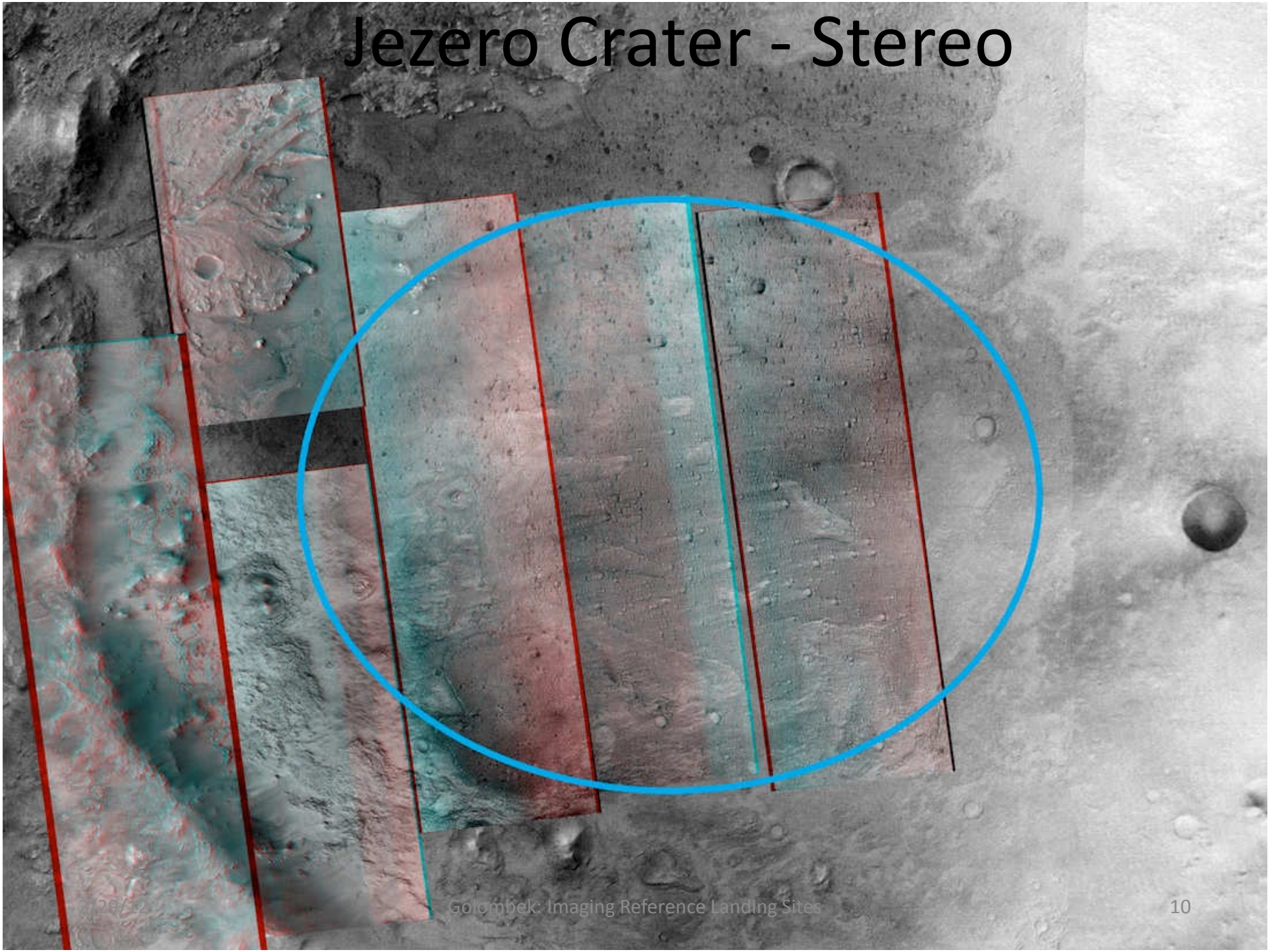

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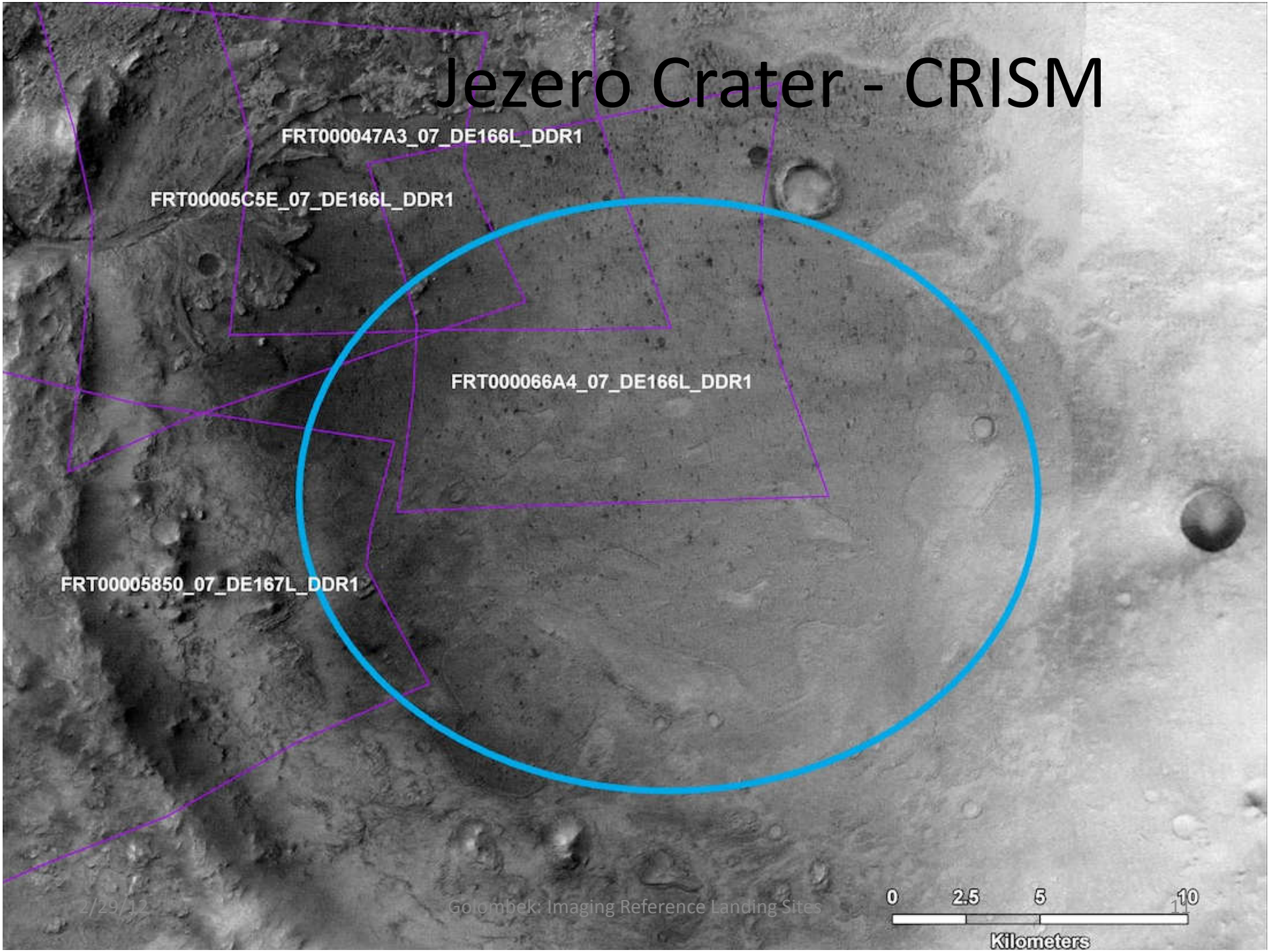
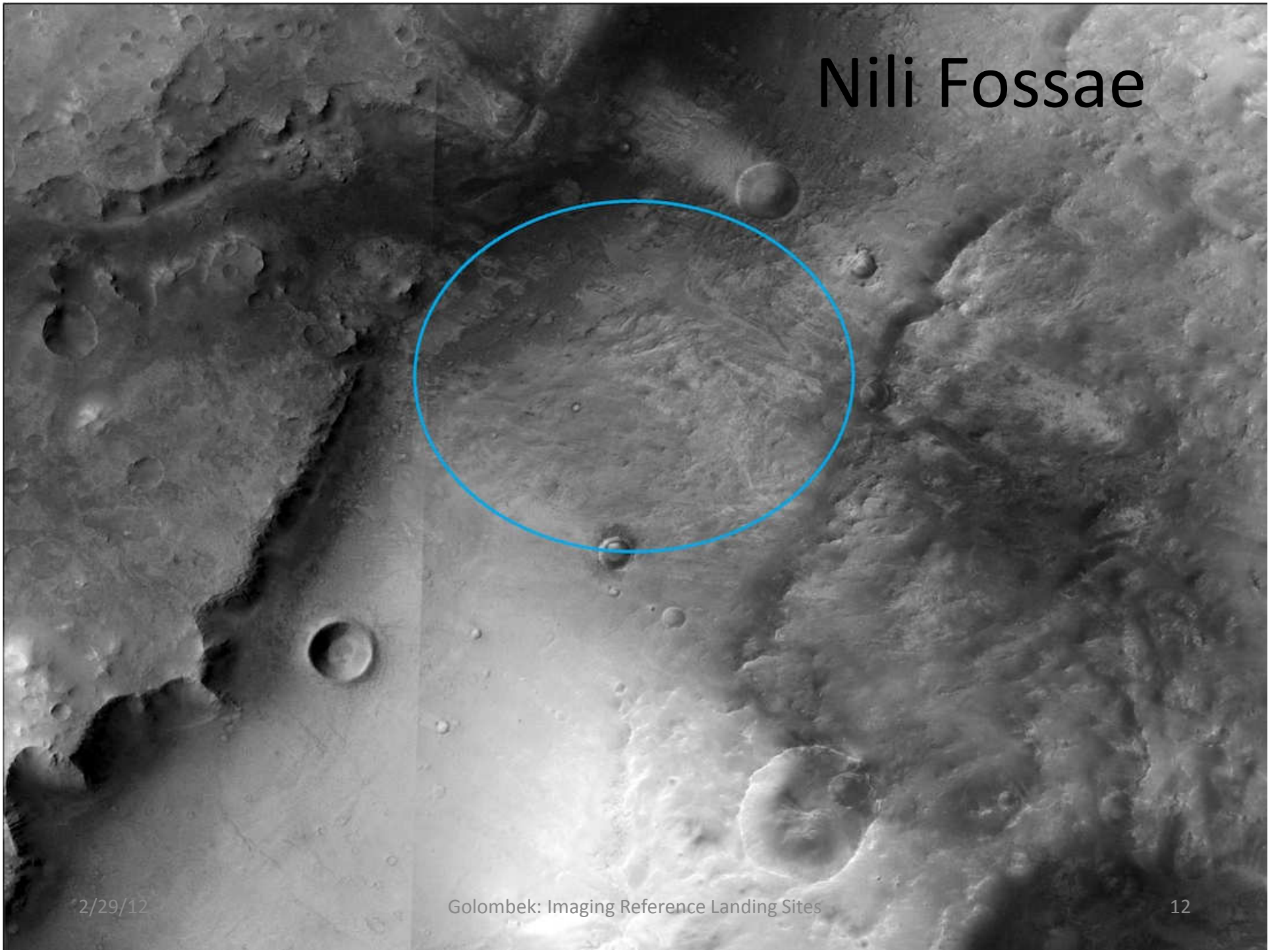


Nili Fossae



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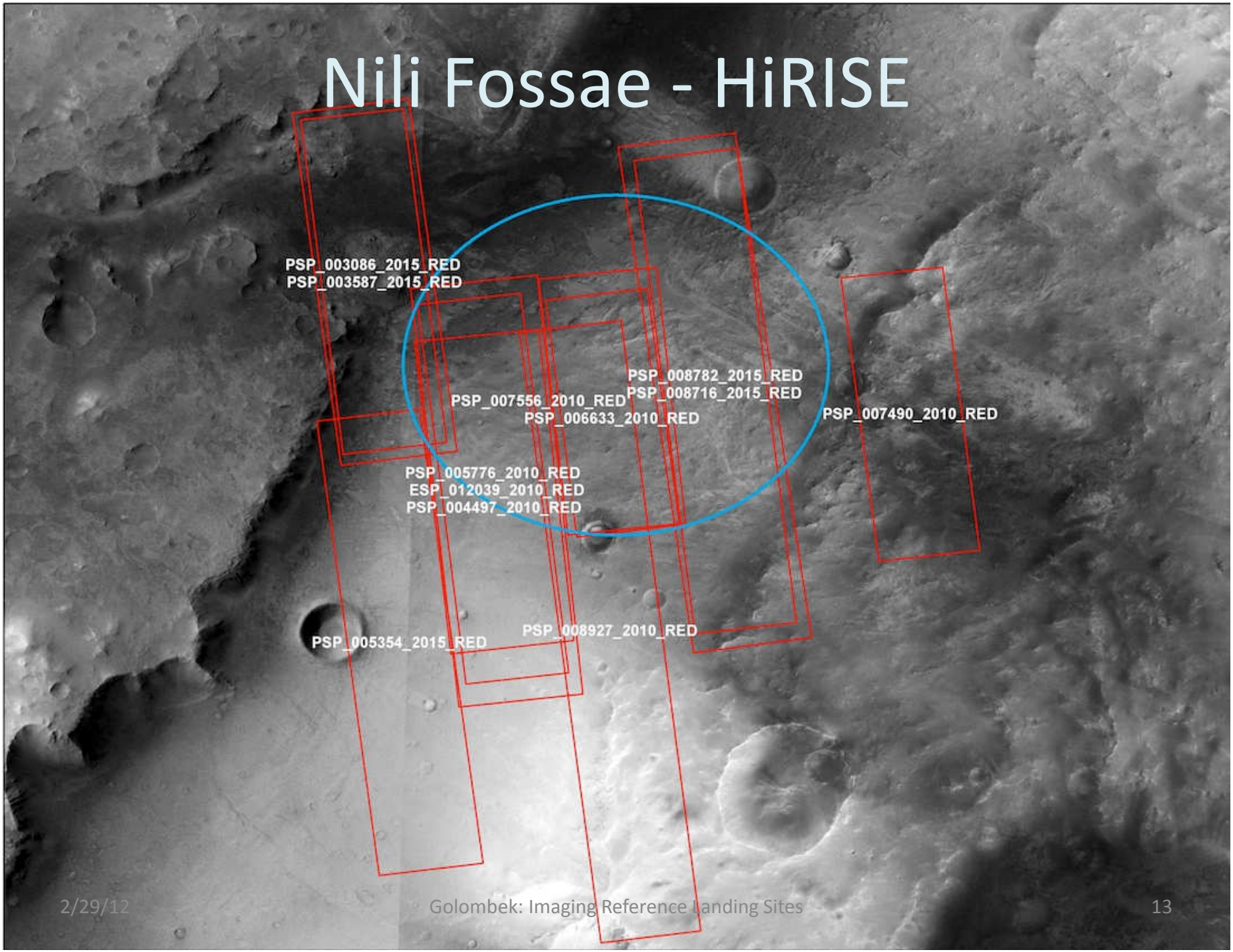

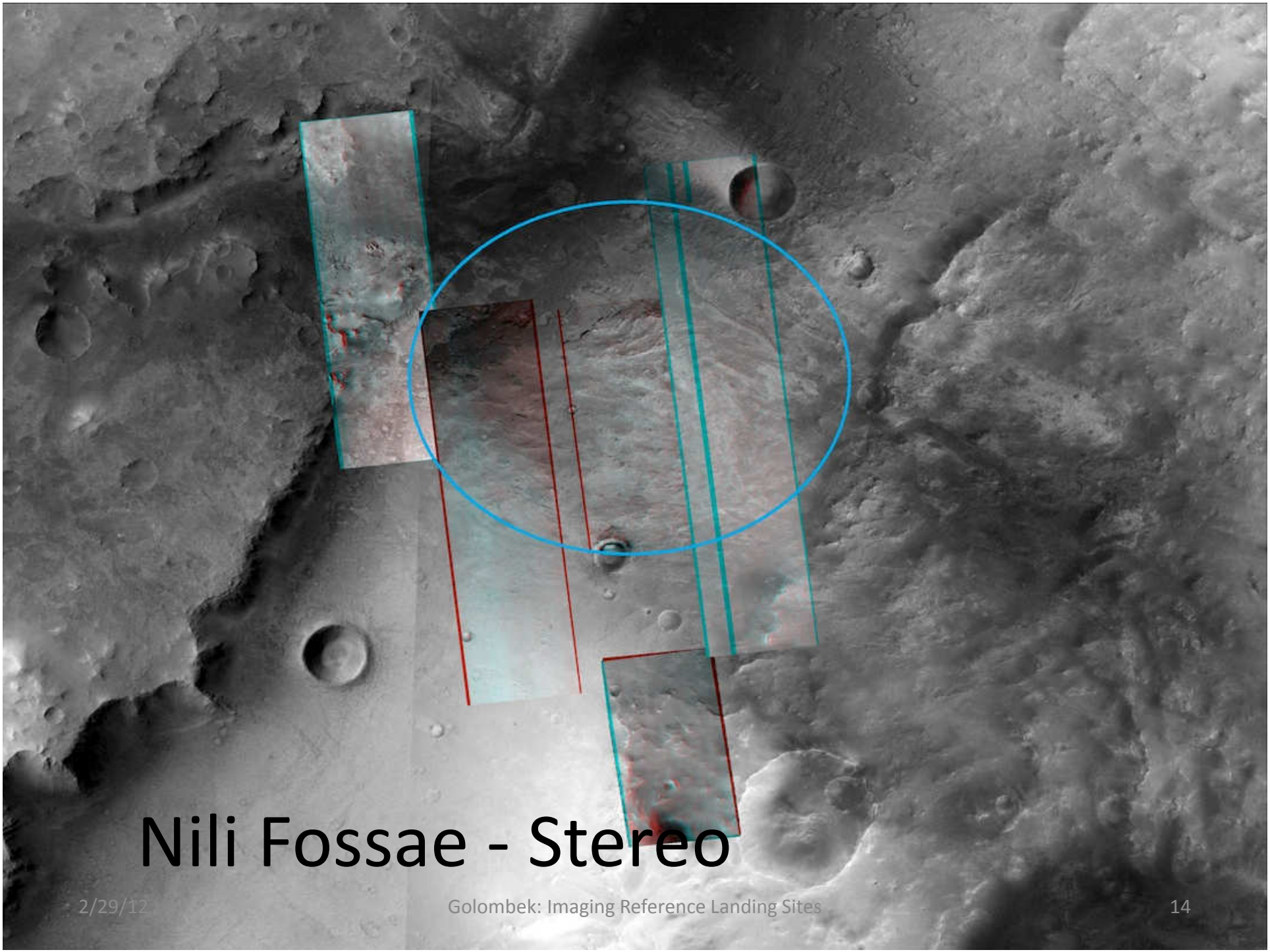

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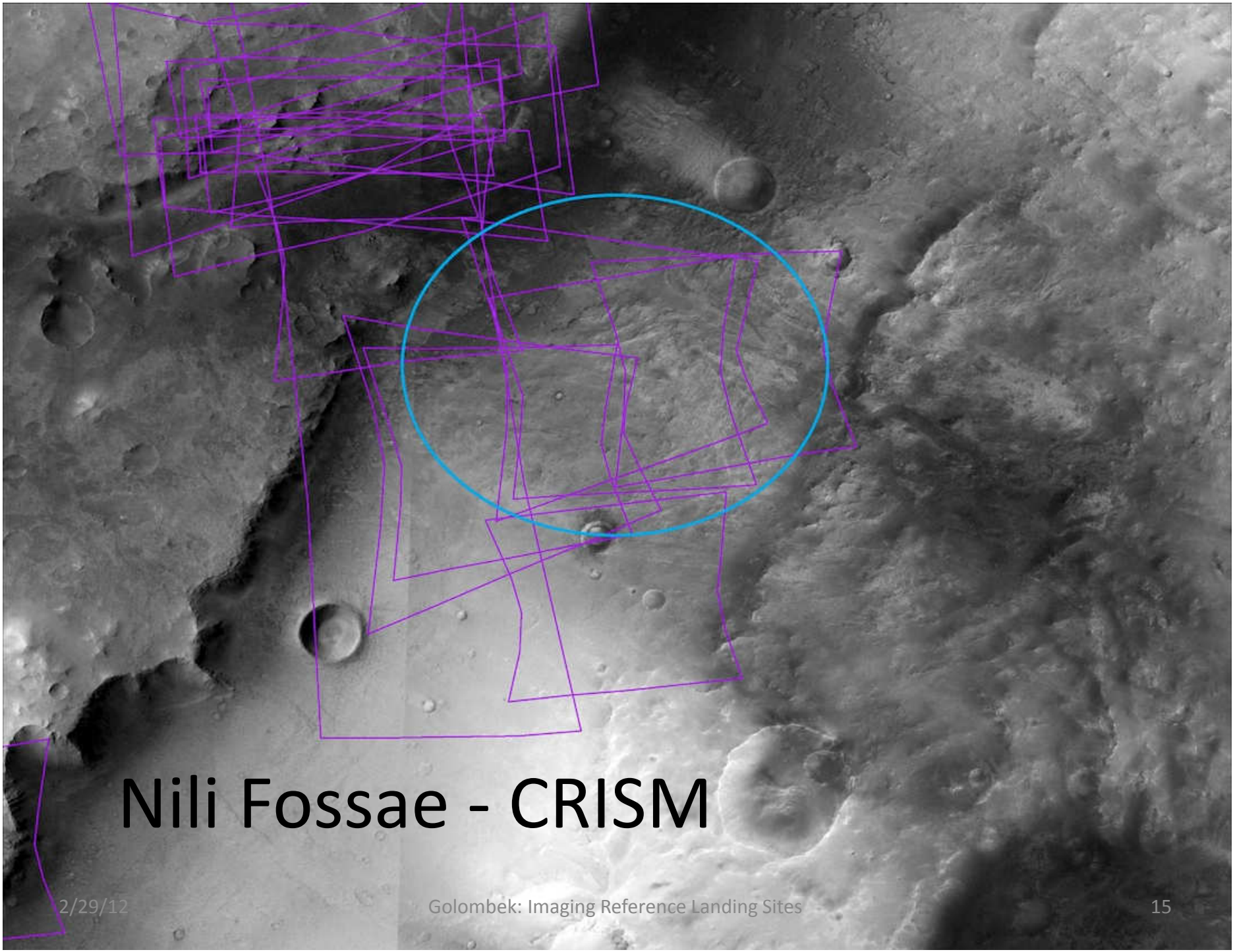
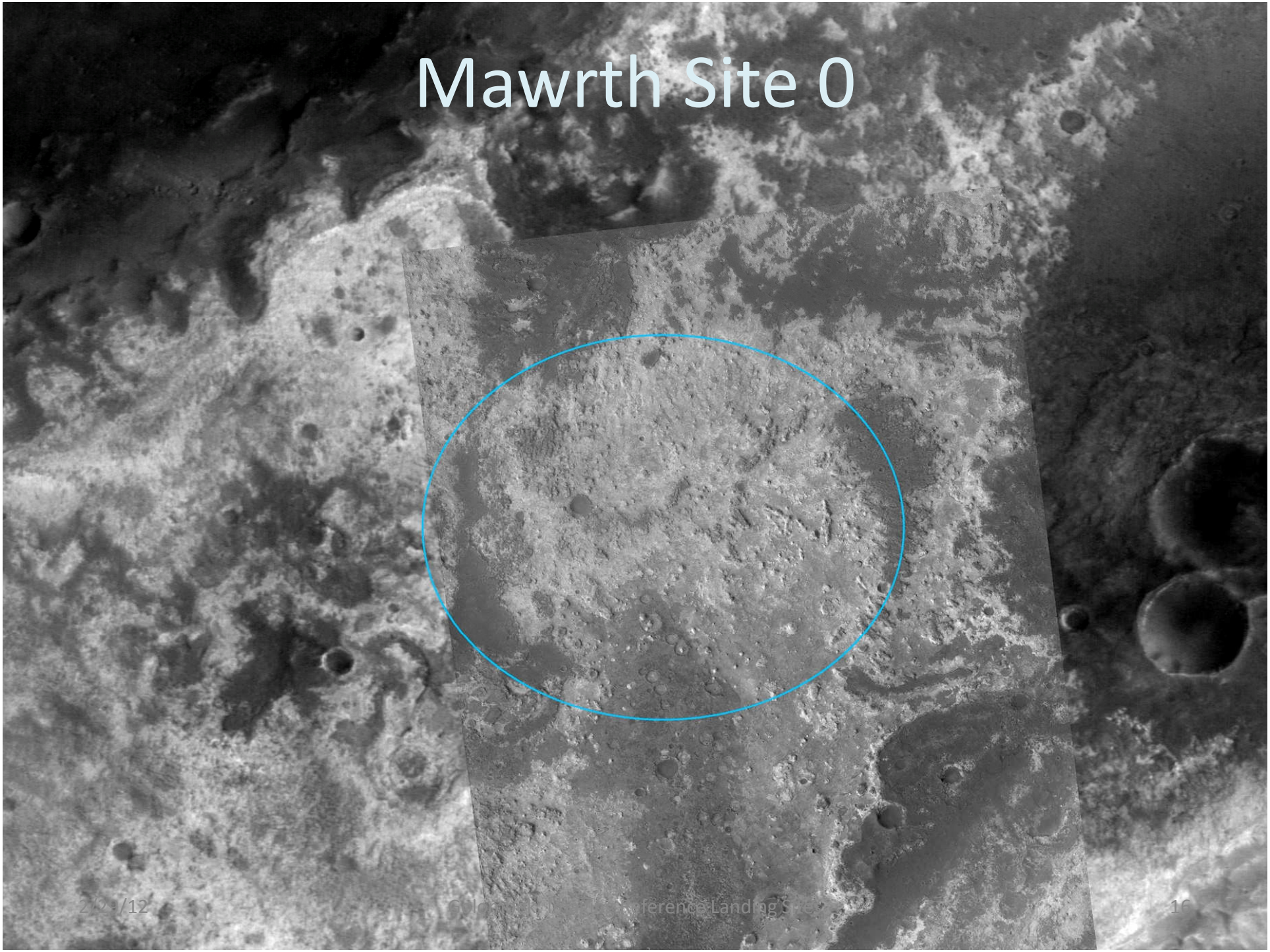
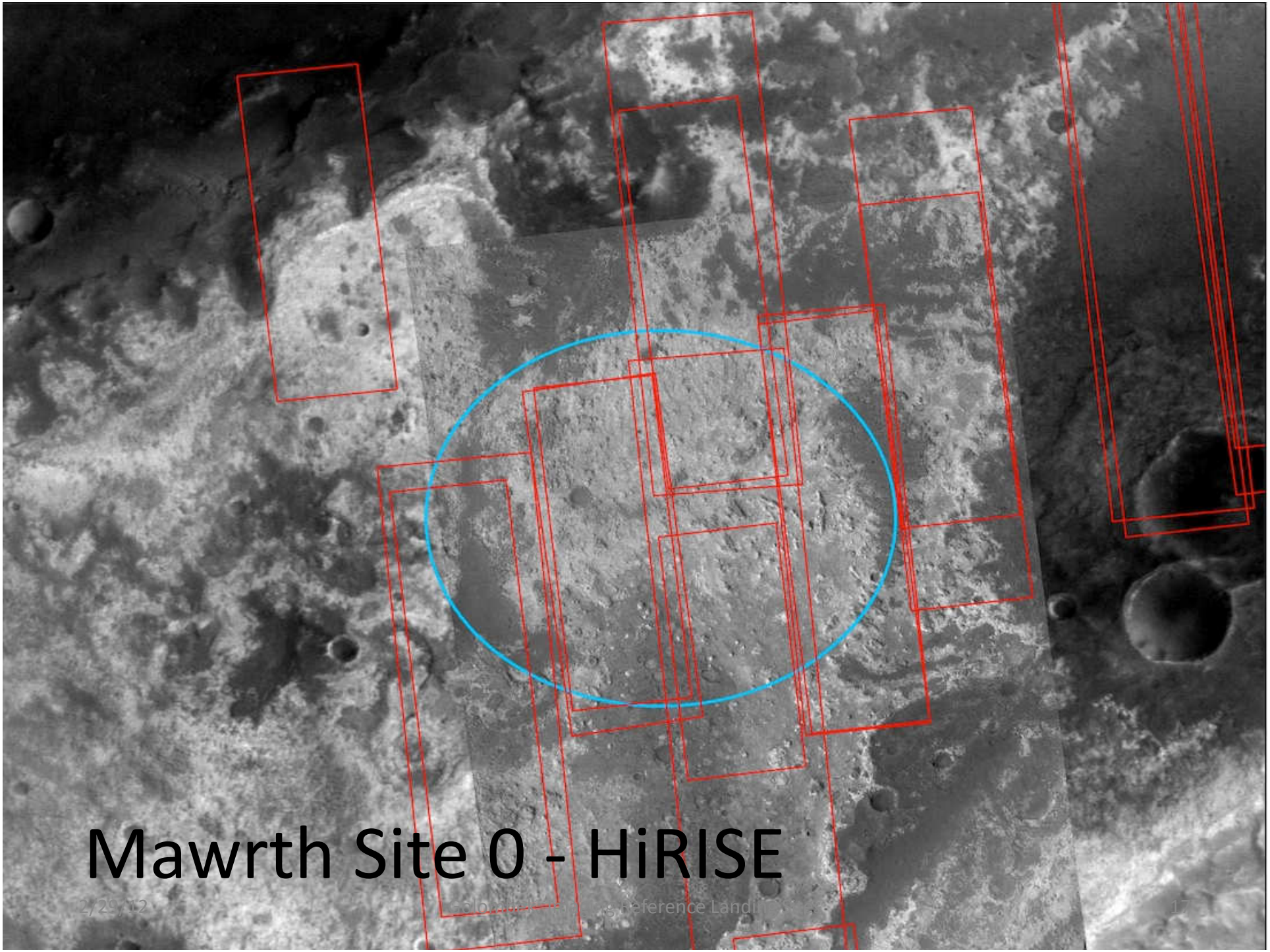


Nili Fossae - CRISM

Mawrth Site 0





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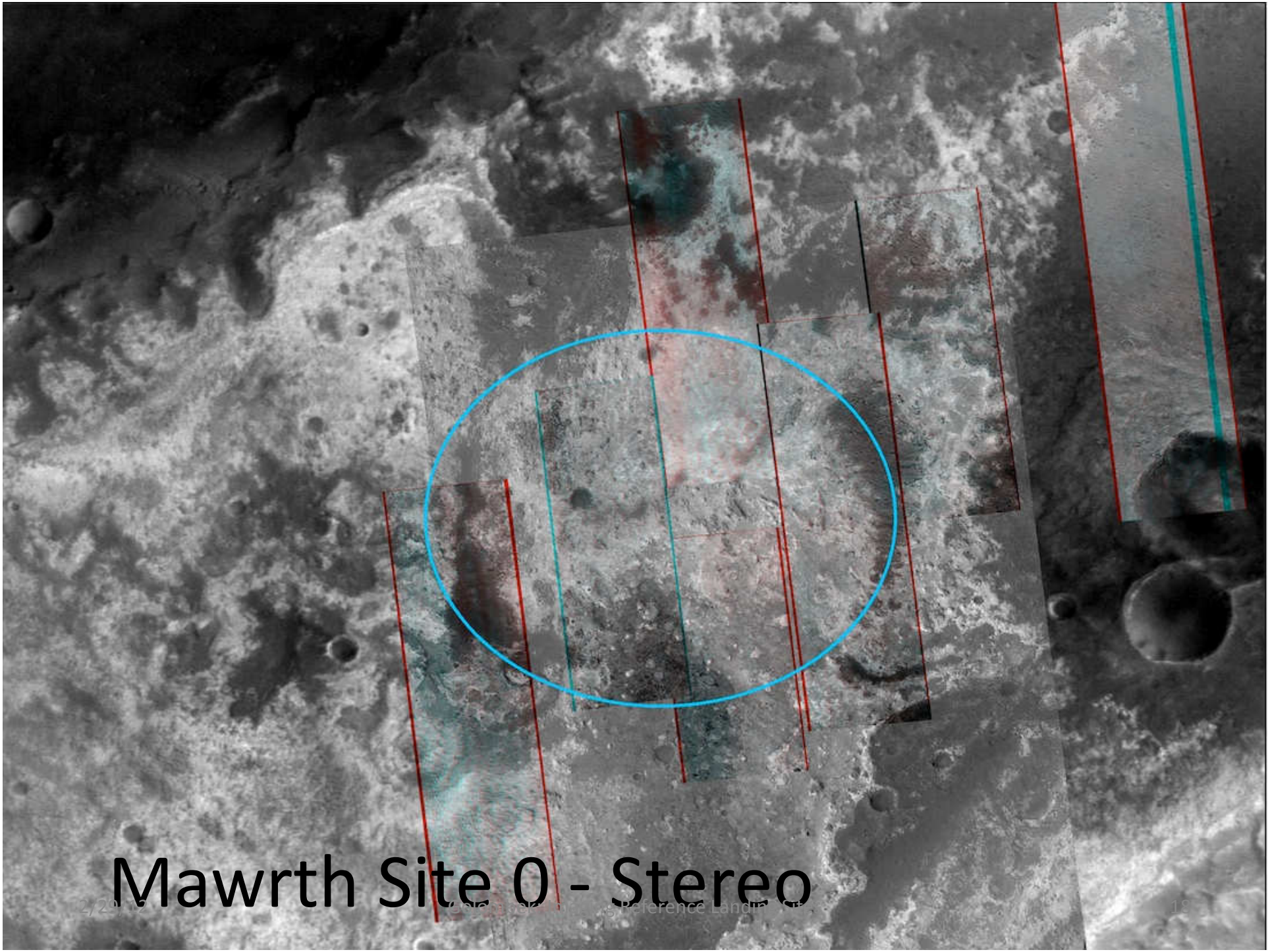

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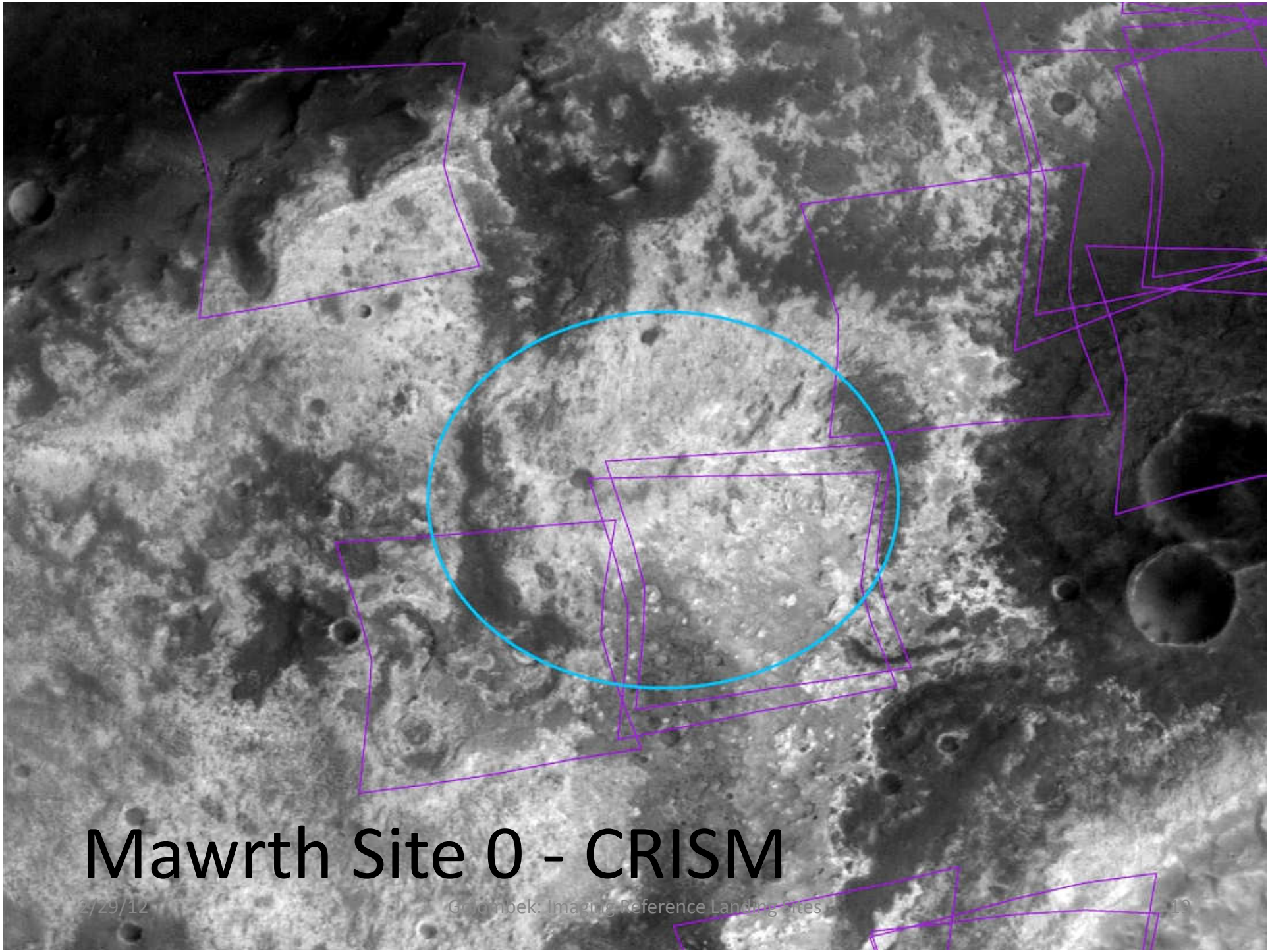
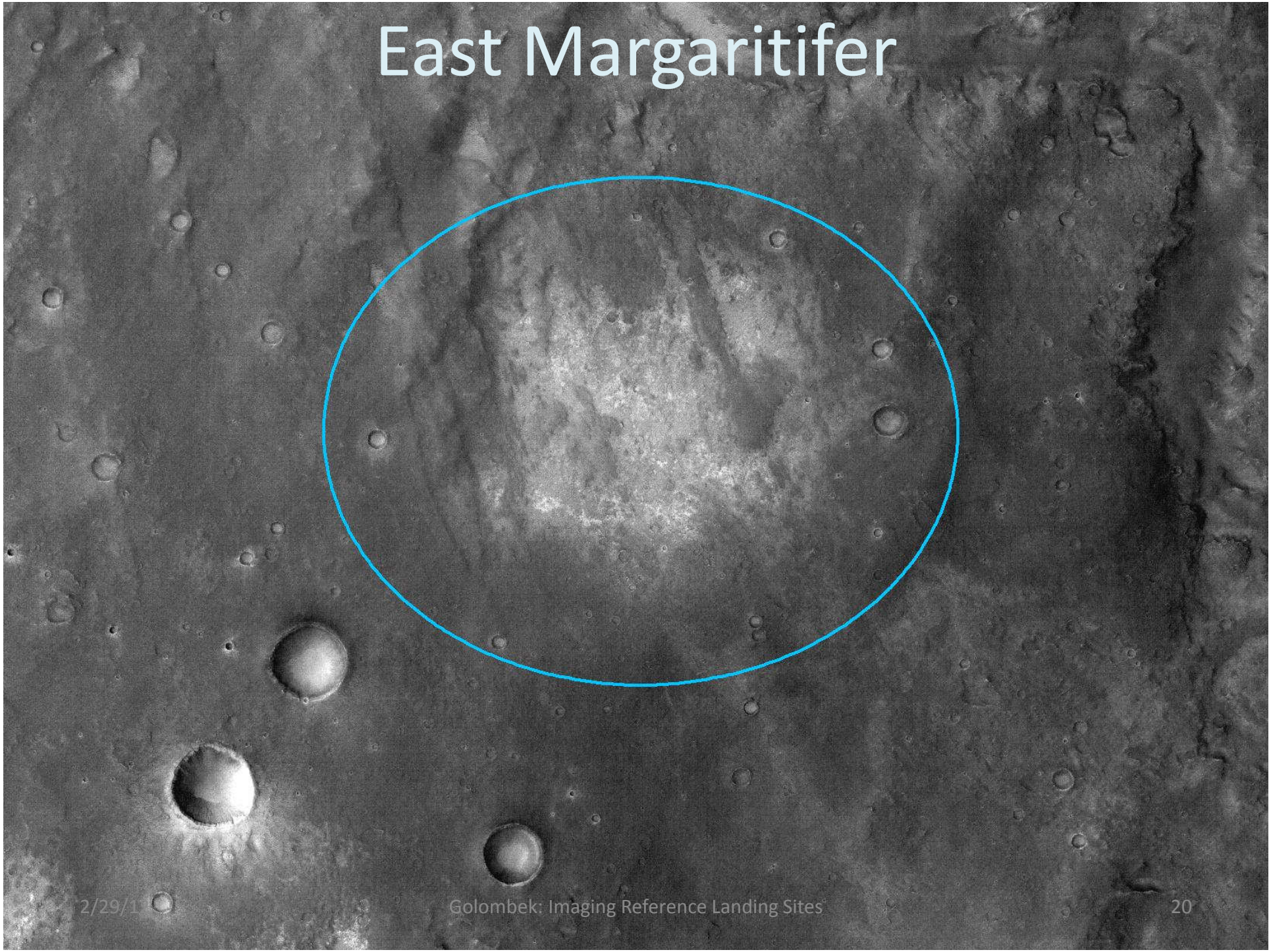
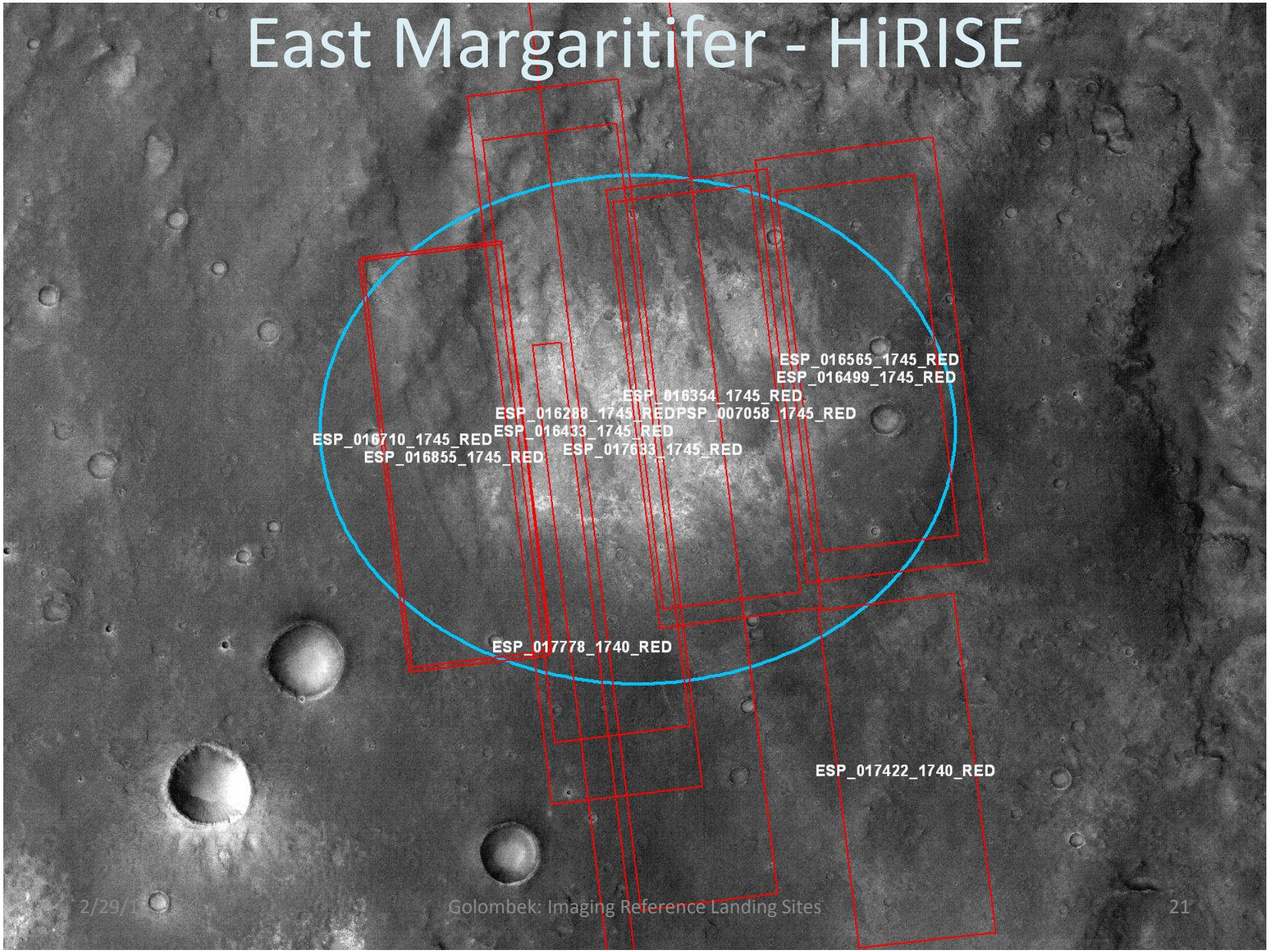


Mawrth Site 0 - CRISM

East Margaritifer



East Margaritifer - HiRISE



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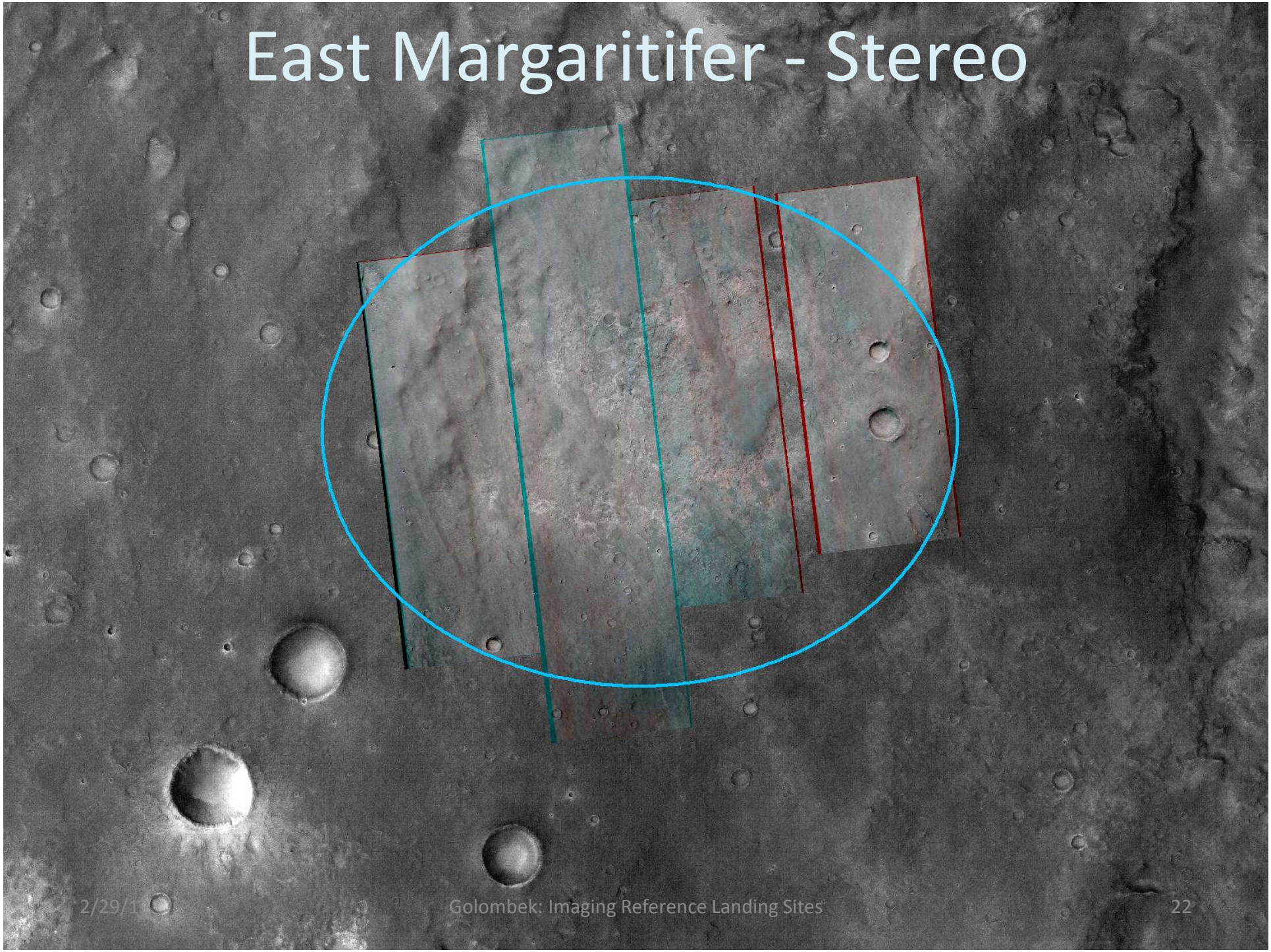

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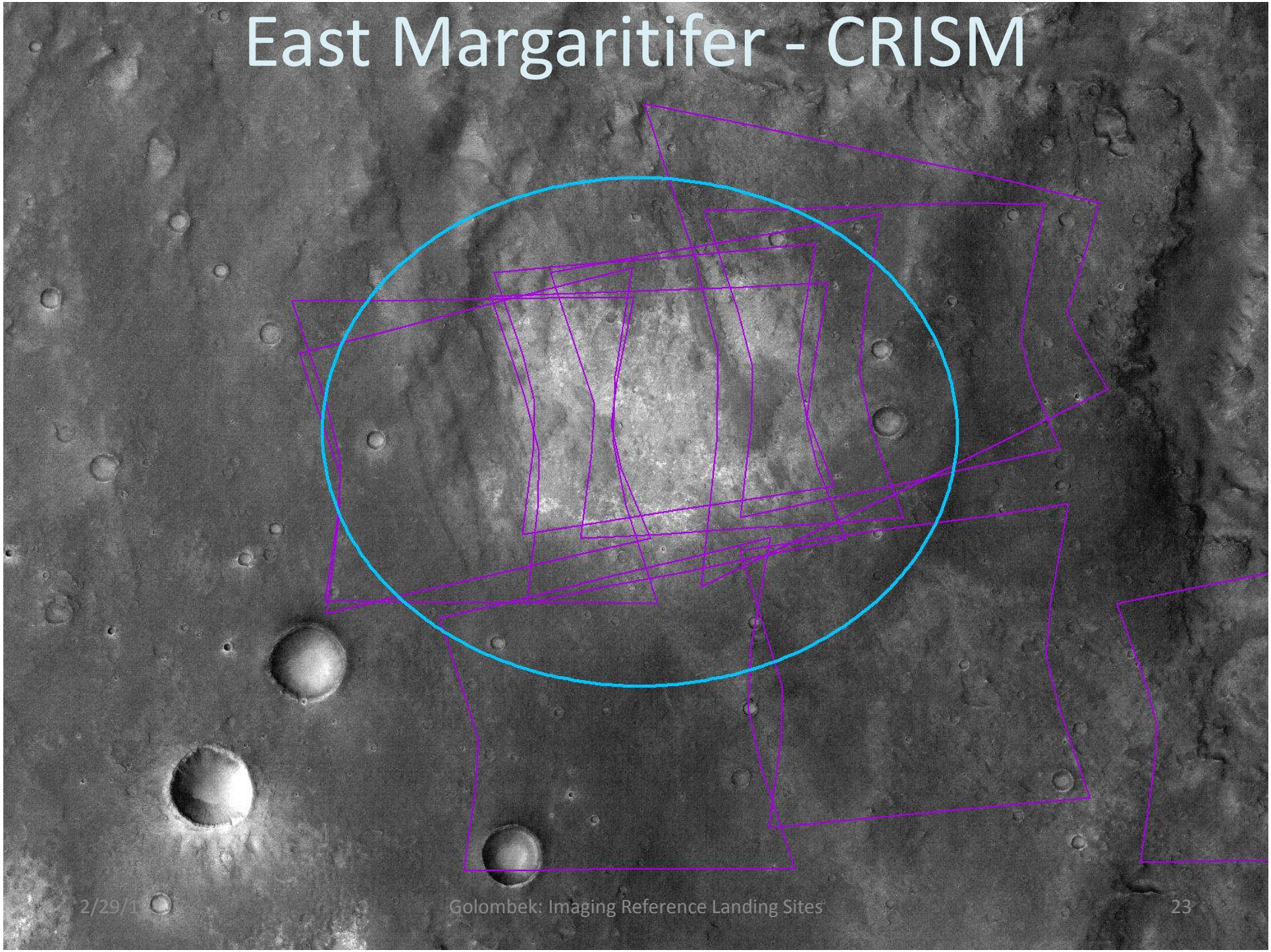
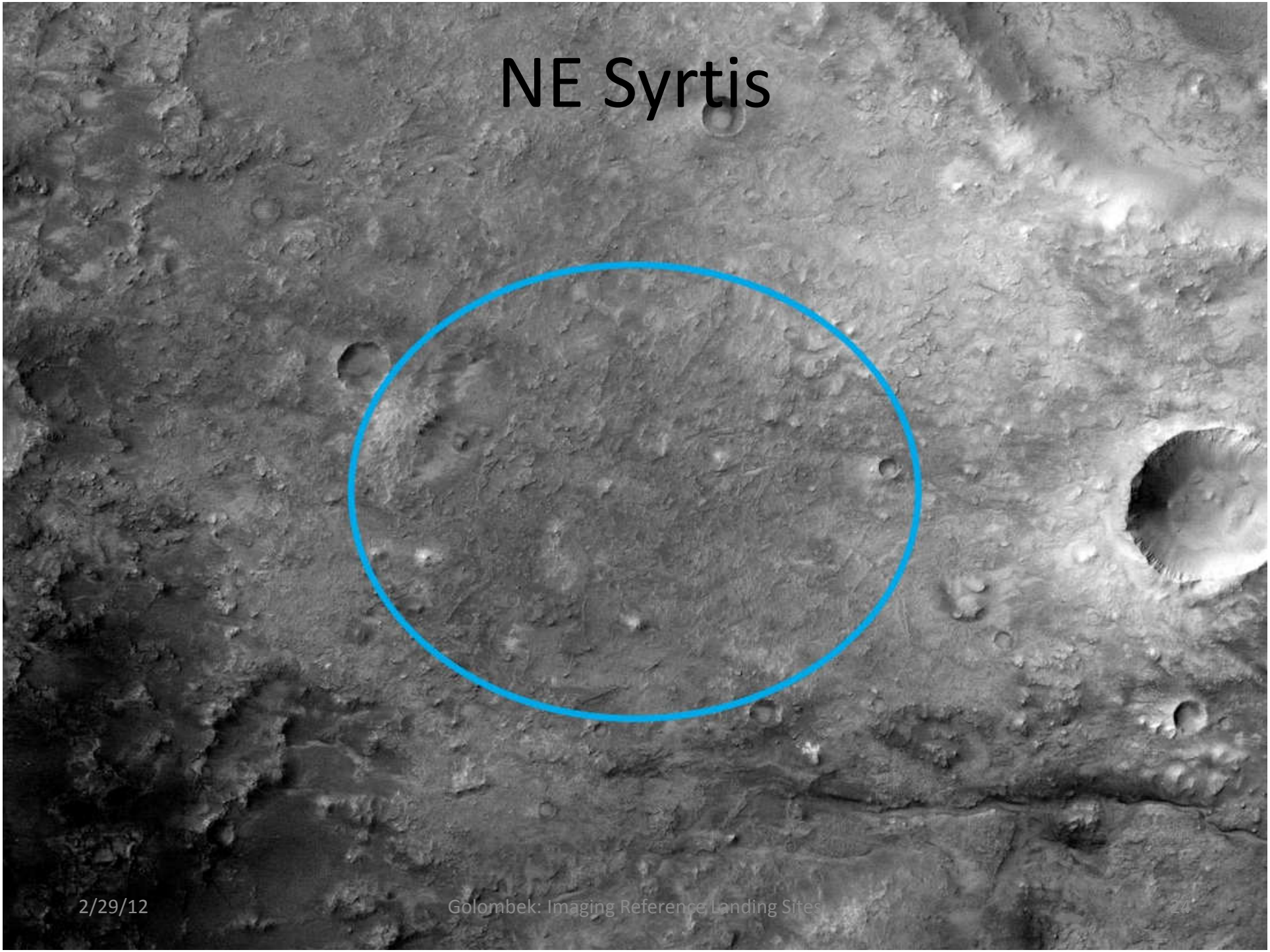


NE Syrtis



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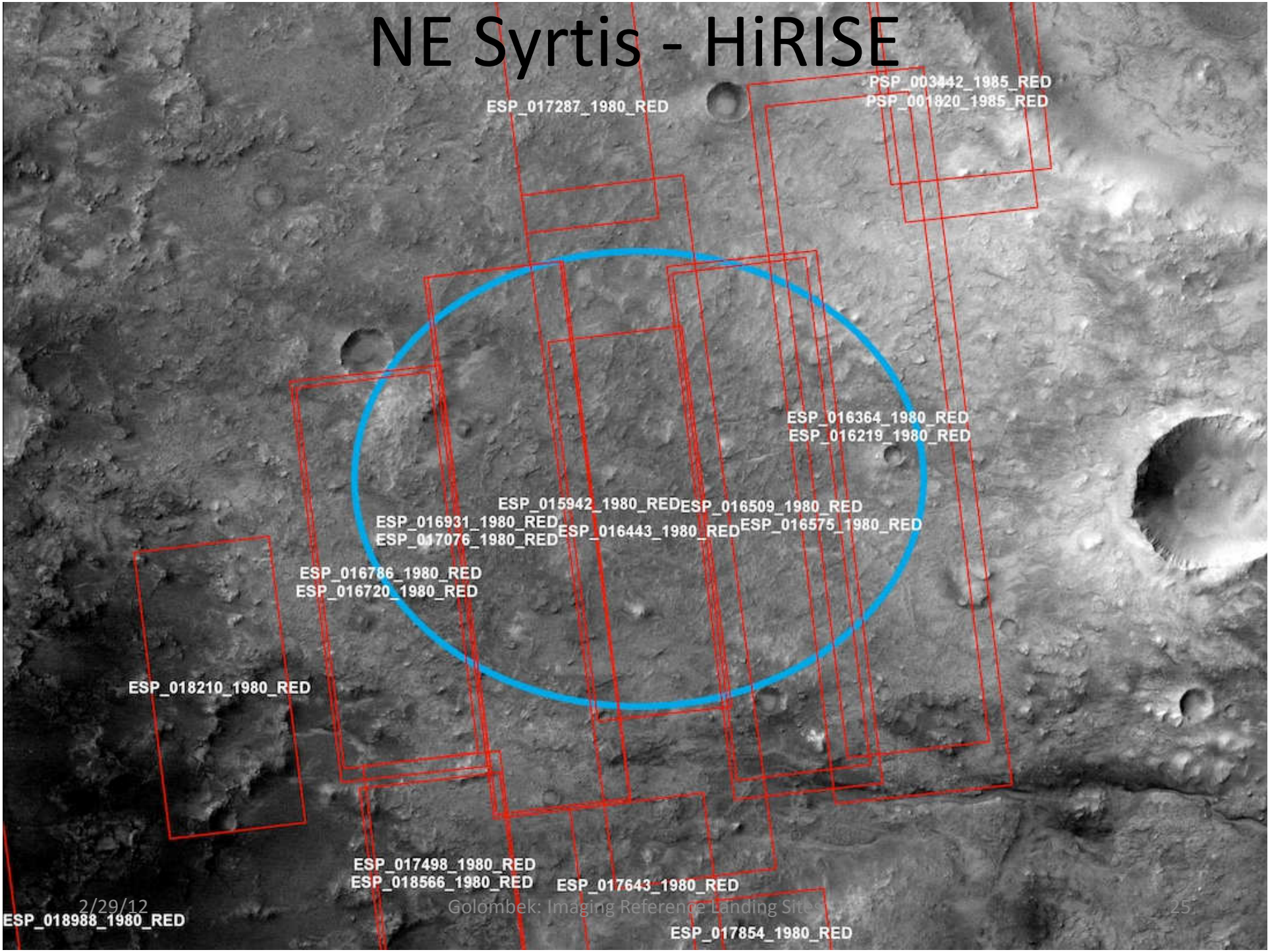

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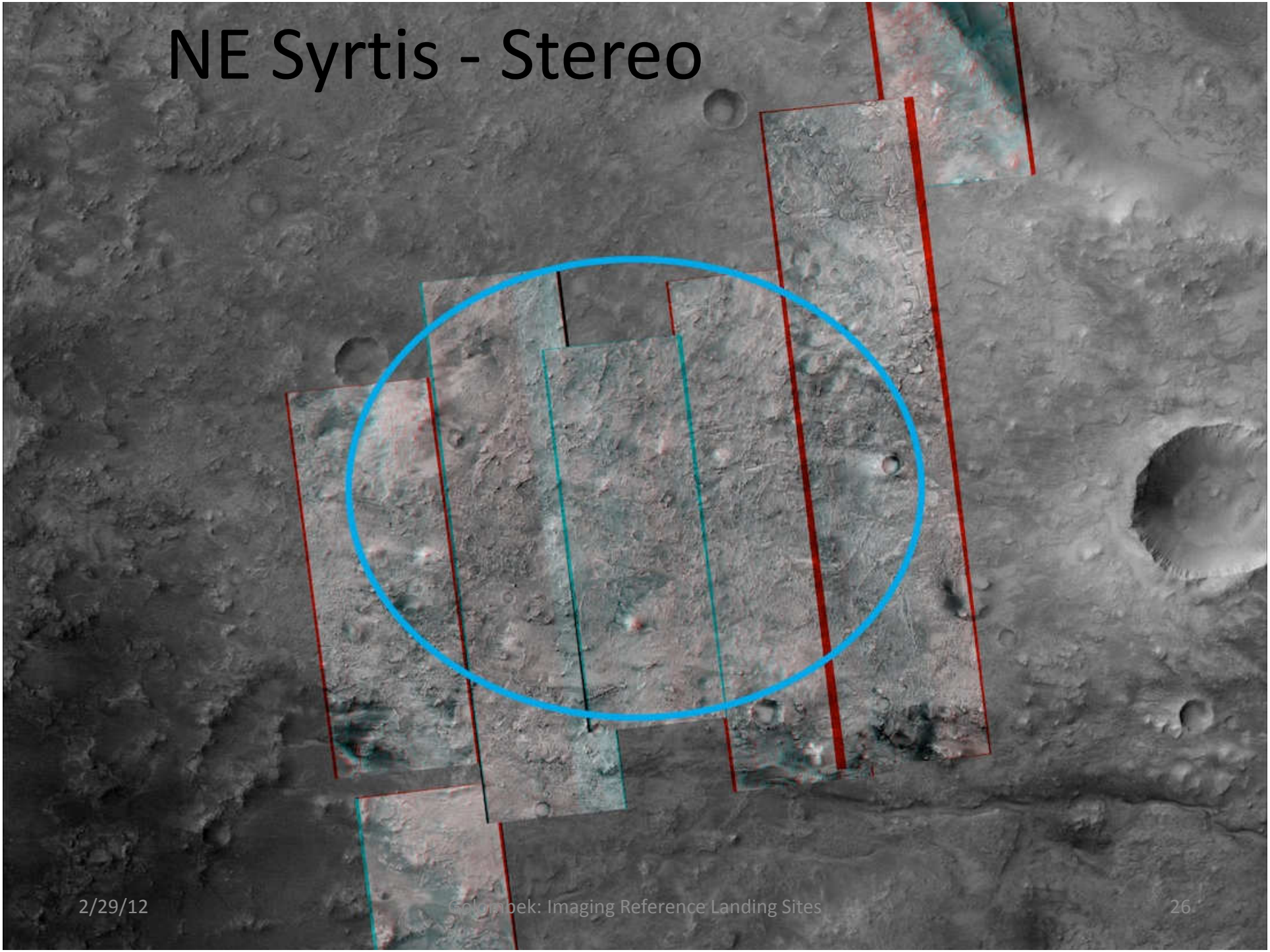

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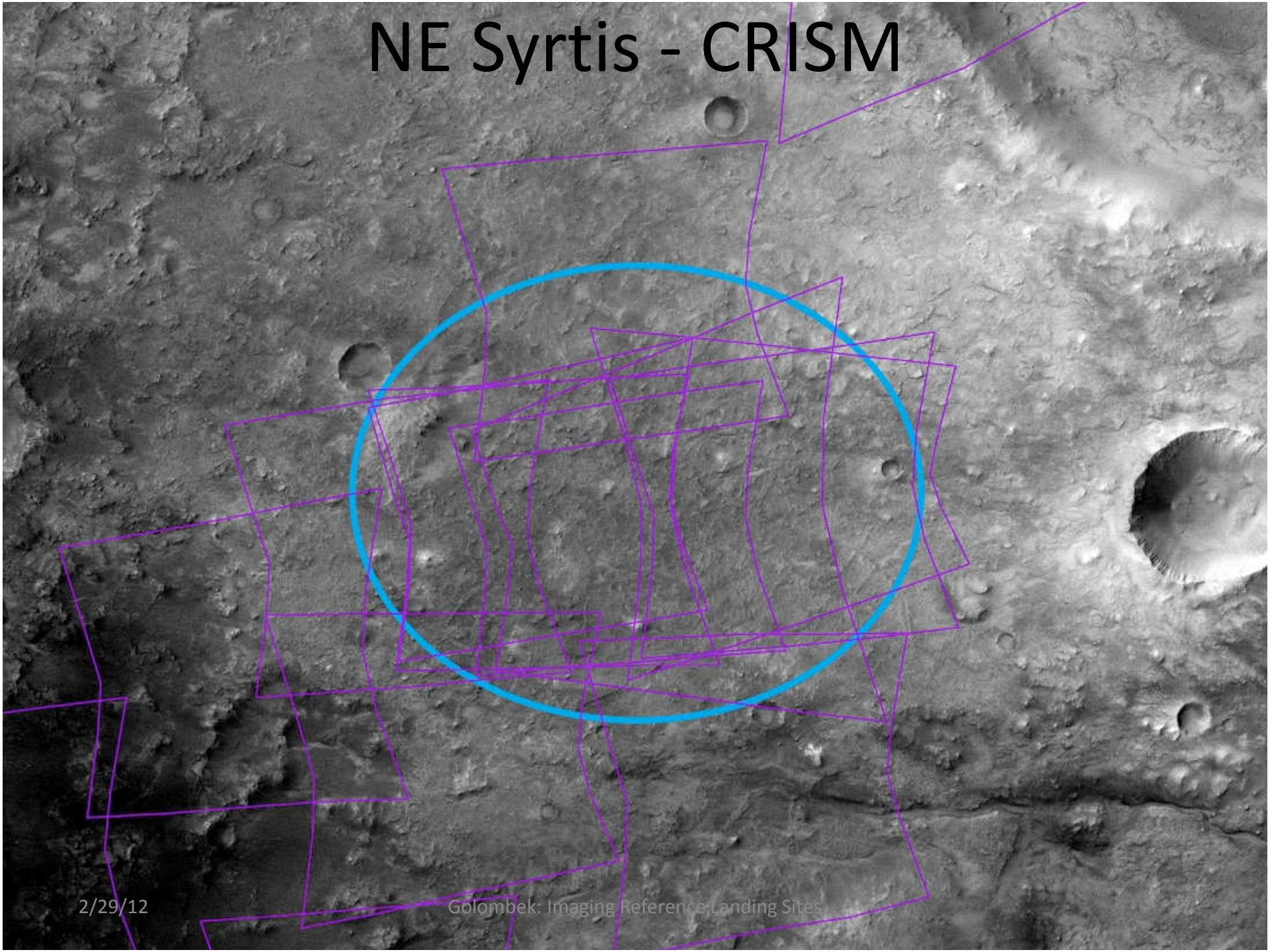
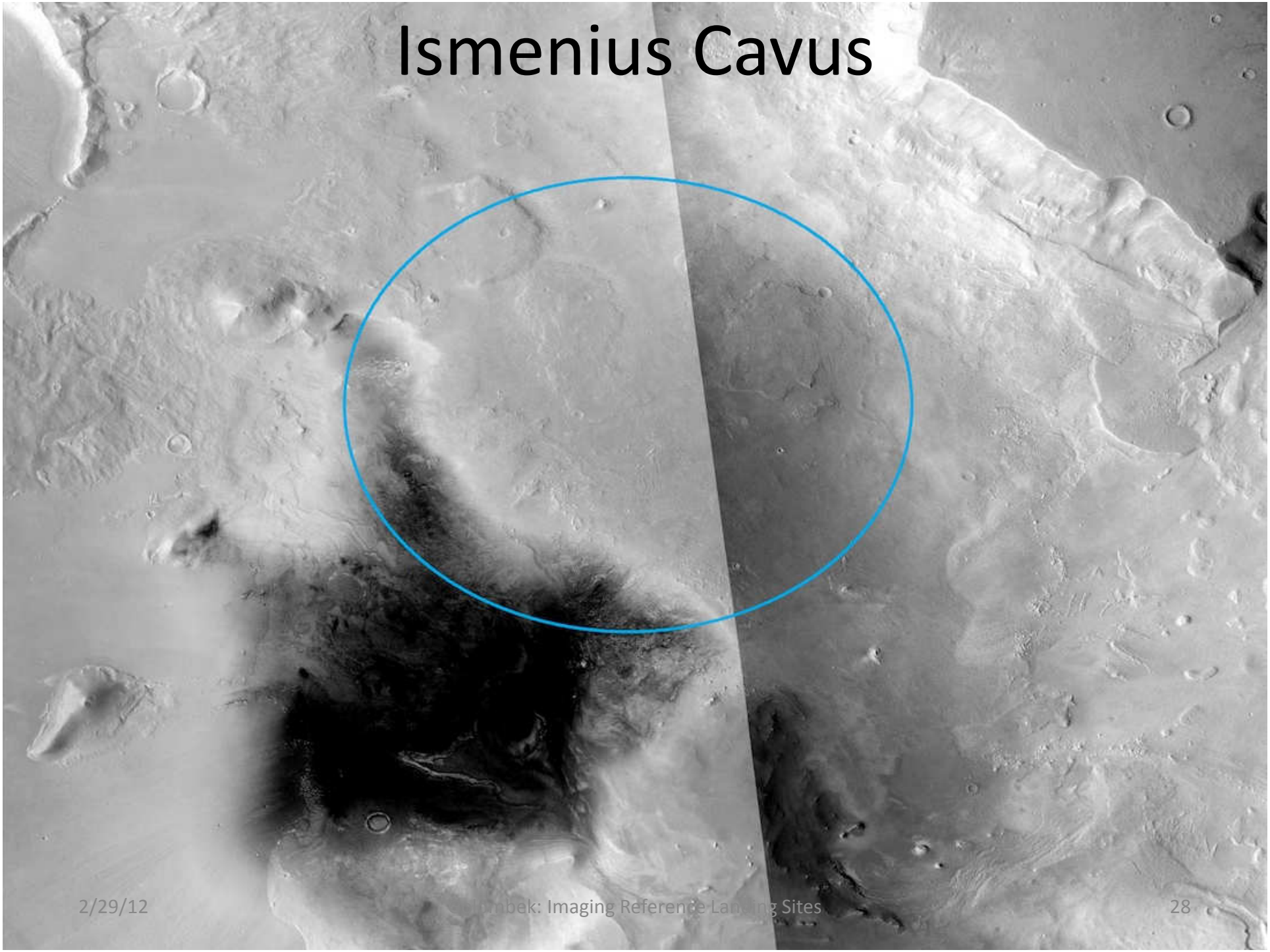


Ismenius Cavus



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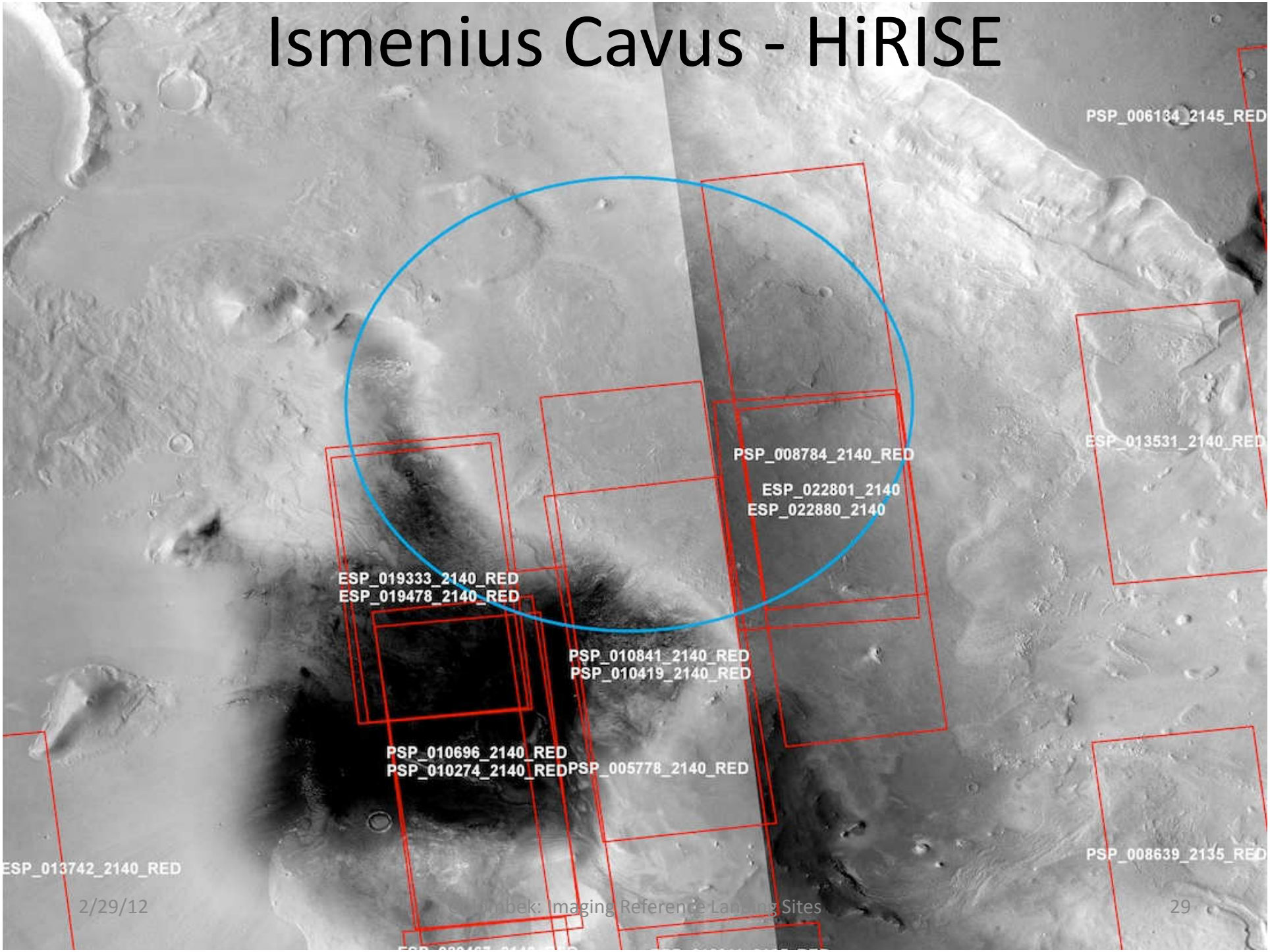

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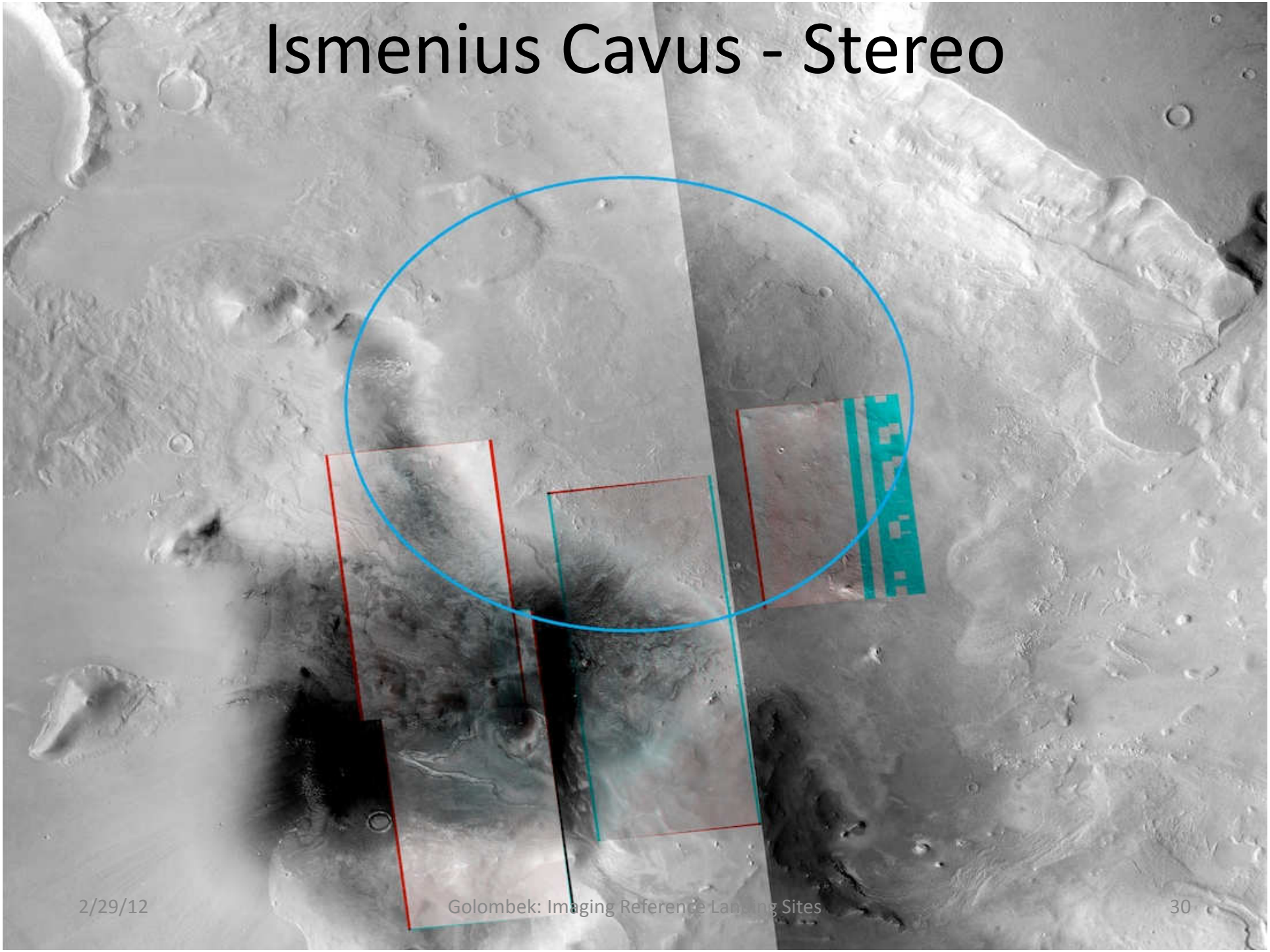
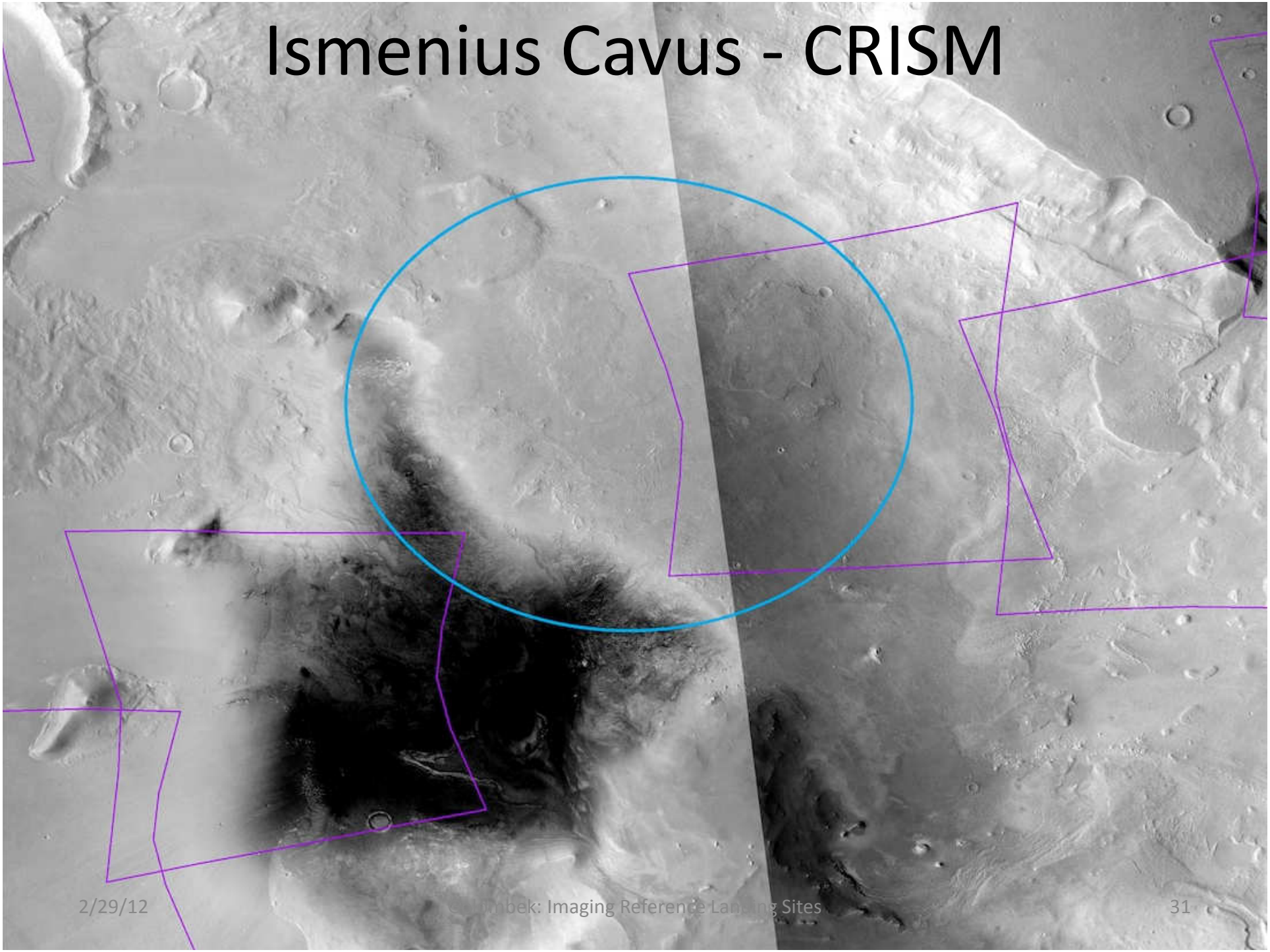
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