



**Major Questions/  
Criteria:**

**Landing Sites: (Workshop 1 Top Half)**

***Safety Criteria***

*Nili Fs Trough   Holden   Terby   Mawth   Ebers walde   Gale   W. Cand   N. Merid   Juven   Nilo Syrt   Melas   E. Merid   Iani   Jezero Crater   Eos   Merid Crat*

Surface Slope/Relief

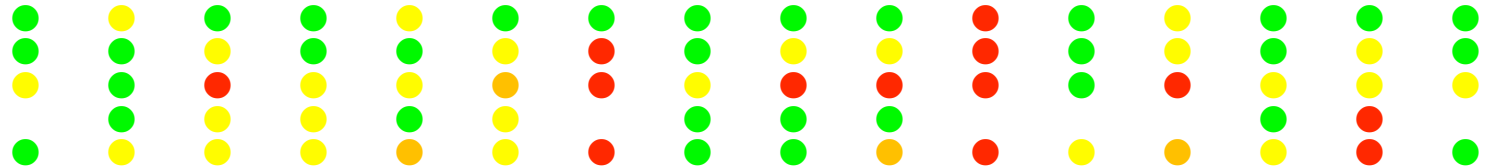
2-10 km Slope

1-2 km Slope

200-1000 m Slope

2-5 m Slope

Relief in HiRISE



Warning Track Slope

2-10 km Slope



Flexibility Ellipse Placement



Safe Haven? (non go to)



Uber Safe Haven

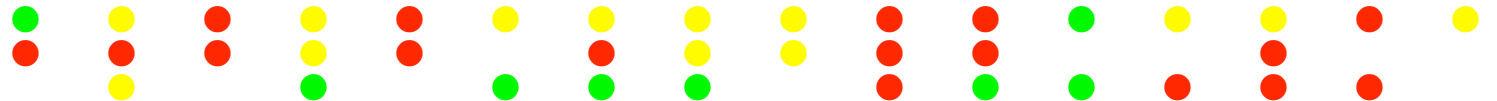


Rock Abundance

IRTM

TES

Rocks Present in HiRISE



Load Bearing Surface



Dust (DCI, Albedo)



Atmospherically Challenging











# Summary MSL Landing Site Criteria

## Major Questions/ Criteria:

## Landing Sites: (Workshop 2 New)

<i>Science Criteria</i>	<i>Gale Alts</i>	<i>Juv Alt</i>	<i>Mer B1</i>	<i>Mer B2</i>	<i>Mer B3</i>	<i>Mer B4</i>	<i>N Mer. M&amp;E Alt</i>
Ability to Assess Biological Potential w/MSL Payload	--	●	--	●	--	●	●
Evidence for Habitable Environment (Environment of Formation and Deposition)	--	●	--	●	--	●	●
Aqueous Environment, Type of Habitable Environment							
Preservation of Bio-Signatures	--	●	--	●	--	●	●
Organic Material, (Pre) Biotic Materials, Biologic Textures, Mineralogic Biosignatures							
Ability to Characterize Geology/Geochemistry	--	●	--	●	--	●	●
Context within Geologic Timescale							
Context within Geologic/Geomorphic/Stratigraphic Setting							
Accessibility							
Accessed by Rover/Arm Go To							
Distance/trafficability to Materials of Interest	--	●	●	●	●	●	●
<1 km, <5 km, >10 km							
Dust Obscuration	--	●	●	●	●	●	●
Reduced Performance							
Thermal Constraints	●	●	●	●	●	●	●

**Major Questions/  
Criteria:**

**Landing Sites: (Workshop 2 New)**

<i>Safety Criteria</i>	<i>Gale Alts</i>	<i>Juv Alt</i>	<i>Mer B1</i>	<i>Mer B2</i>	<i>Mer B3</i>	<i>Mer B4</i>	<i>N Mer. Alt</i>
Surface Slope/Relief							
2-10 km Slope	●	●	●	●	●	●	●
1-2 km Slope	●	●	●	●	●	●	●
200-1000 m Slope	●	●	●	●	●	●	●
2-5 m Slope	●	●	●	●	●	●	●
Relief in MOC/HiRISE	●	●	●	●	●	●	●
Warning Track Slope							
2-10 km Slope	●	●	●	●	●	●	●
Flexibility Ellipse Placement	●	●	●	●	●	●	●
Safe Haven? (non go to)	●	●	●	●	●	●	●
Uber Safe Haven	●		●	●	●		●
Rock Abundance							
IRTM							
TES						●	
Rocks Present in HiRISE							
Load Bearing Surface		●	●	●	●	●	●
Dust (DCI, Albedo)		●	●	●	●	●	●
Atmospherically Challenging	●	●	●	●	●	●	●

200-1000 m relief from 43 m at 300, 600, 900 m length scales along track bidirectional slope in 20 km circle at landing site where G>96%; Y>90%, R<90%; also used 43 m relief (equivalent slope of 2.66°) over 926 m binned MOLA data and 25 km circle, G no slopes over 2.66°, Y some slopes over 2.66° and R many slopes over 2.66°

1-2 km relief from binned MOLA data at 1389 m (3 pixels) for slope of 12.56° evaluated over 25 km circle where G no slopes over 12.56°, Y some slopes over 12.56°, R many slopes over 12.56°

2-10 km slope from 20° at 2.1, 3.9, 6, 8.1 km length scales along track bidirectional slope in 20 km circle at landing site where G=100%, Y<100%, R<96%

warning track slopes evaluated over 2 km length scale using binned MOLA data over 35 km circle where G no slopes over 20°, Y some slopes over 20° and R many slopes over 20°

Flexibility in ellipse placement evaluated using binned MOLA data over 926 m for slopes of 2.66° and 1389 m for slopes of 12.56° and 25 km circle where G has great flexibility, Y has some, R has no flexibility

Safe Haven evaluated using binned MOLA data over 926 m for slopes of 2.66° and 1389 m for slopes of 12.56° and 35 km circle for non go to sites where G has no slopes over criteria, Y has some slopes over criteria, R is a go to site

Relief in HiRISE from Jen/Parker study

Rock Abundance from IRTM and TES

8% matches requirement of 0.5% prob in 4 m<sup>2</sup> for 1.1 m dia, 0.55 m high

12% is 1% probability, so call Y up to 15%, R >15%

**Rocks in HiRISE, None G, some Y, lots R**

Reduced Performance Thermal Constraint: based on actuator study assuming -60C AFT. >22.5N = Yellow; 15S-22.5N = Green; 15-22.5S = Yellow, >22.5S = Red. Does not take into account A & TI of surface, which could make the rating more or less favorable than the above.

Atmospherically Challenging: Based on extrapolations from “challenge sites” by J. Barnes and D. Tyler.