GUSEV CRATER: ASSESSING ITS RELEVANCE AS THE MER-A LANDING SITE

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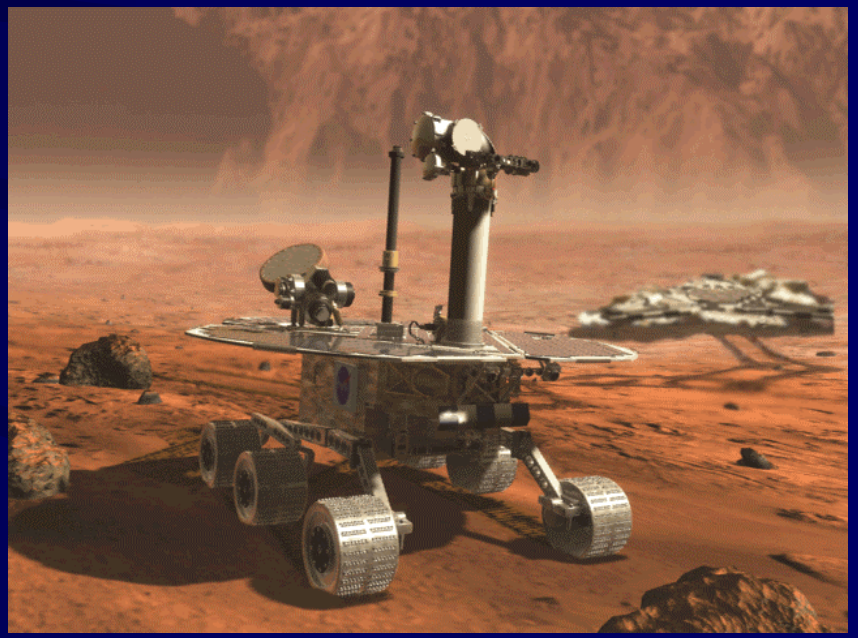
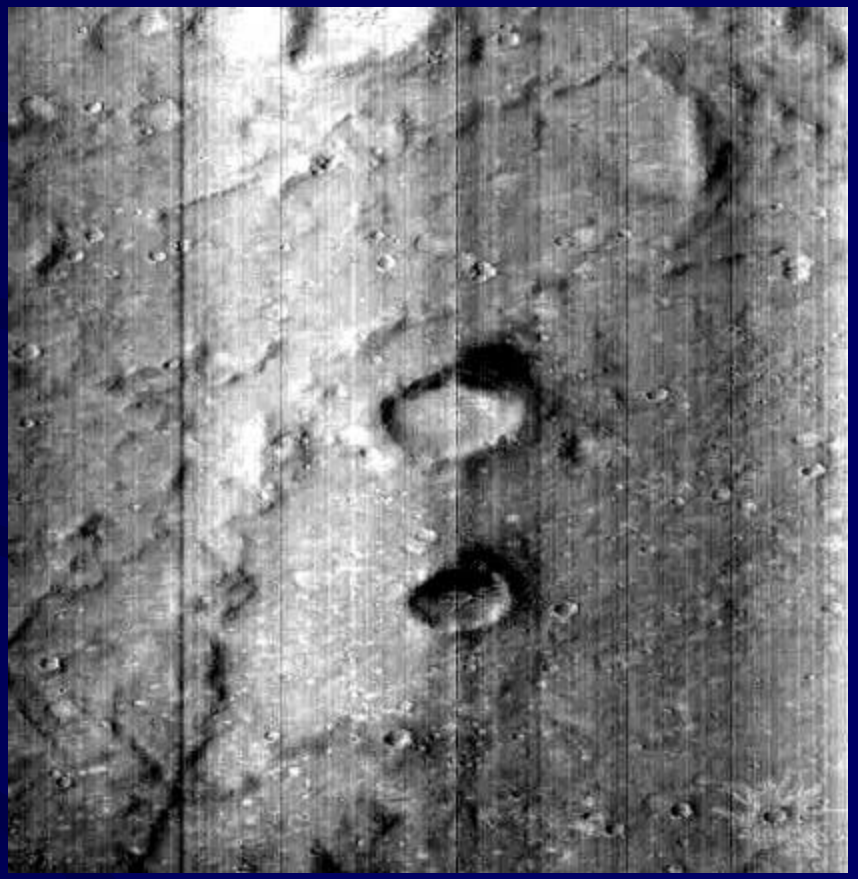
Which Site is Best?

- Strongest MER-A candidate site will combine safety with achieving the science objectives of the mission.



Safety

- True, Gusev is not a perfectly smooth site.
- But none of the other sites are perfectly smooth either!

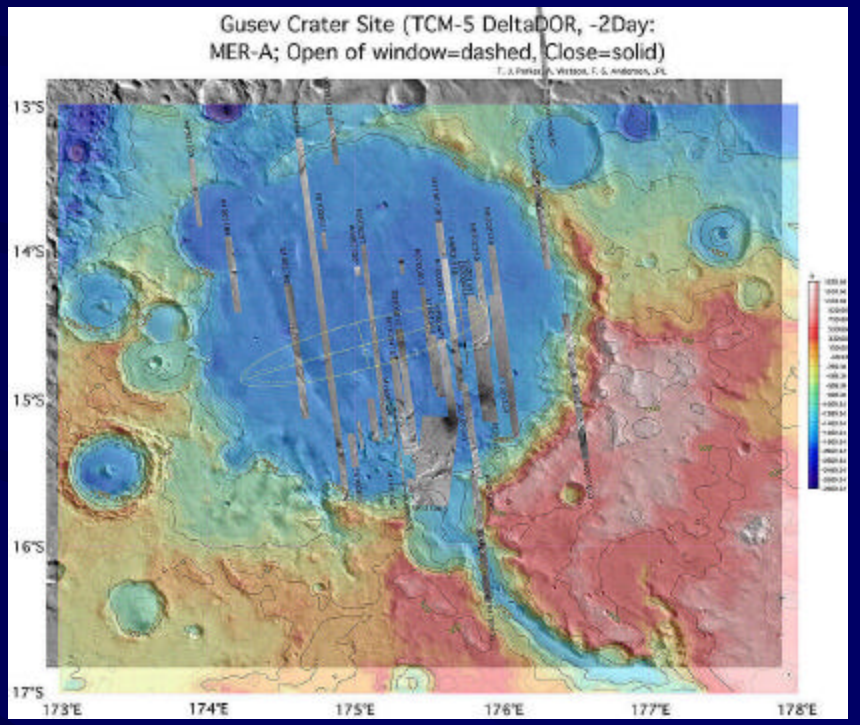


Safety

	Gusev	Terra Meridiani	Melas	Isidis	Eos
RMS Surface Slopes	3	1	6	2	8
1.2 km Slopes	0.6 (+/-0.93)	0.25 (+/- 0.30)	1.49 (+/- 1.74)	0.40 (+/- 0.70)	1.01 (+/- 1.40)
IRTM rocks (mean)	15	6.33	11.6	15.25-16	14.67
TES Mean Albedo	0.23	0.16	0.168	0.22	0.138
TES Bulk TI (mean)	302.54	254.19-263.34	308.32	465.90-487.54	397.03
Fine Component TI	247.67	298.17-308.62	253.31	368.89-392.92	298.17

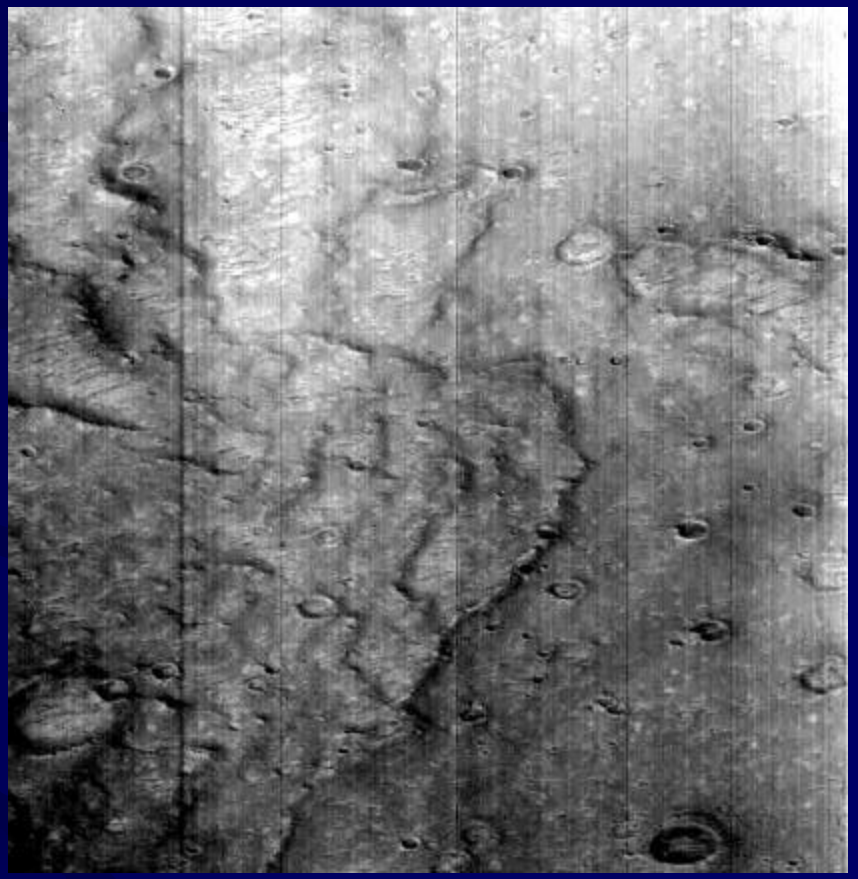
Science Goals

- ***Does site show clear evidence of surface processes involving ancient water?***
- YES. Only Gusev and Isidis show ***clear*** evidence of water and only Gusev shows strong evidence for ponding of water.



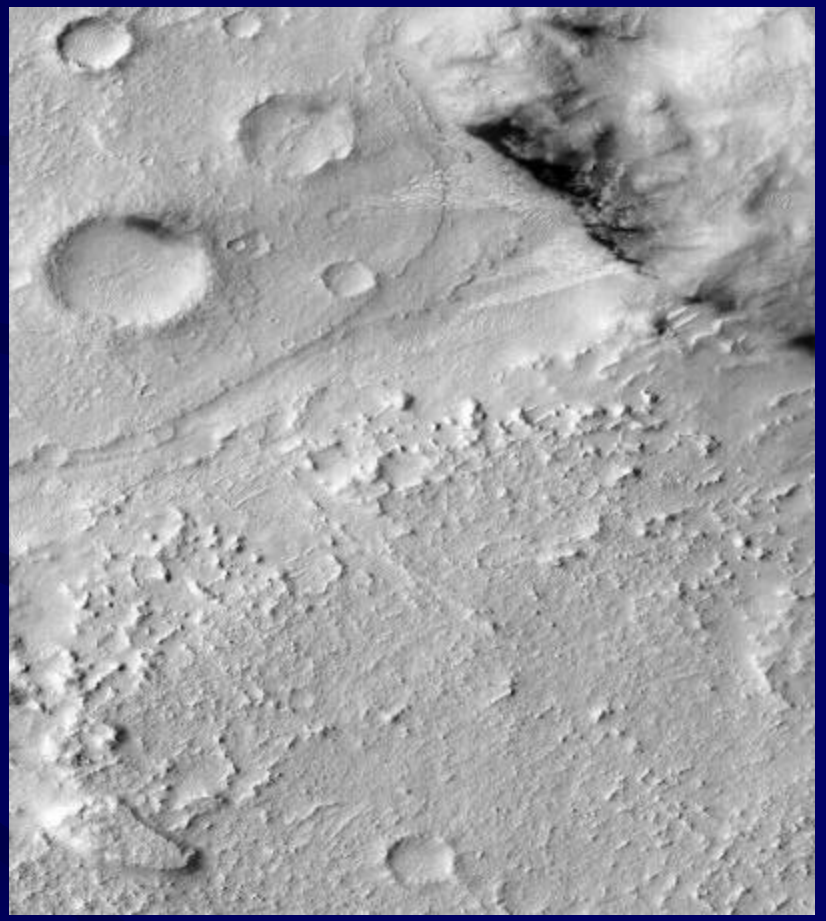
Science Goals

- ***Is site favorable for preservation of possible prebiotic or biotic processes?***
- YES. Gusev and Terra Meridiani are the best sites for preservation of such material. Materials at Gusev could be exposed by impacts.



Science Goals

- ***What geologic materials are available?***
- Paleolake sediments.
- Impact materials.
- Sediments probably contain highland materials.
- Hydrothermal materials from Thyra.



Conclusions

- Gusev meets the safety requirements and science goals of the MER-A landing site.
- It is the only site which ***clearly*** shows evidence of surface processes involving ancient water and strong potential for preservation of possible prebiotic or biotic processes.
- Gusev is the strongest MER-A candidate site meeting all of these requirements.