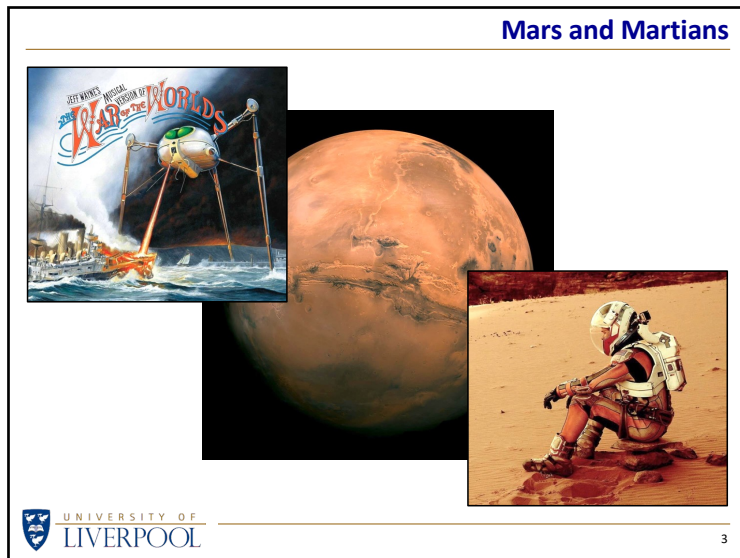
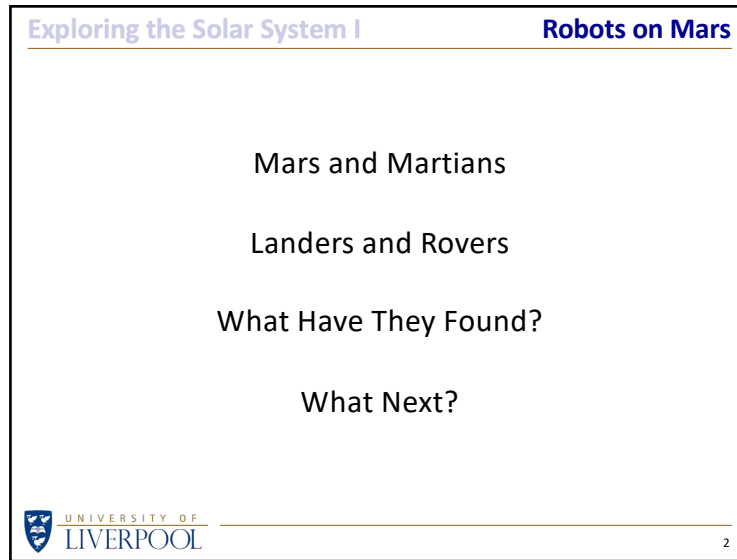




Exploring the Solar System I – Robots on Mars



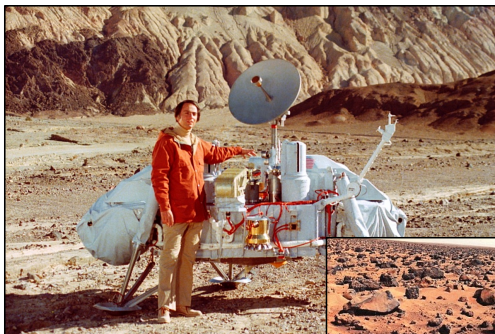
Exploring the Solar System I – Robots on Mars

Landers and Rovers


	<i>Landers</i>	<i>Rovers</i>	
1976	Viking		
1997	Pathfinder	Sojourner	
2004		Spirit	
2004		Opportunity "Oppy"	
2008	Phoenix		
2012		Curiosity	
2018	Insight		
2020		Perseverance "Percy"	

 5


Viking 1976



First colour images



Carl Sagan provides scale for a model of the Viking lander

 6

Perseverance Launch




To get Perseverance to Mars needed a small Atlas rocket.

Apollo missions to the Moon in the 1960s needed the much larger Saturn V rocket.



 7

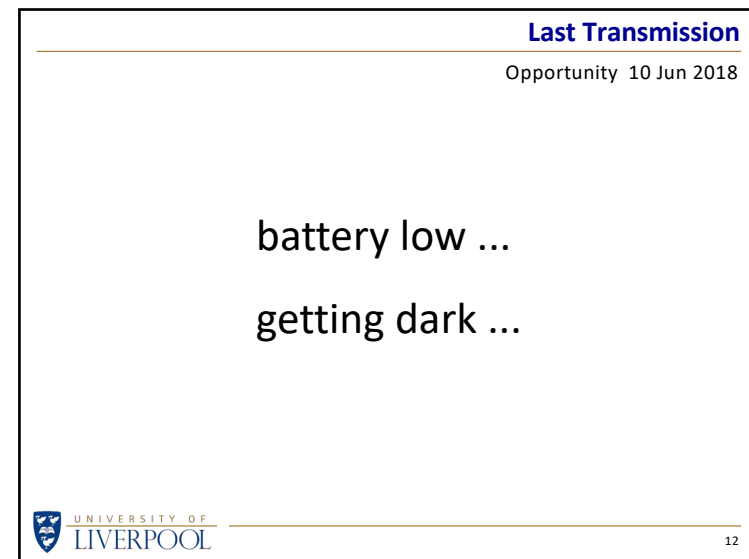
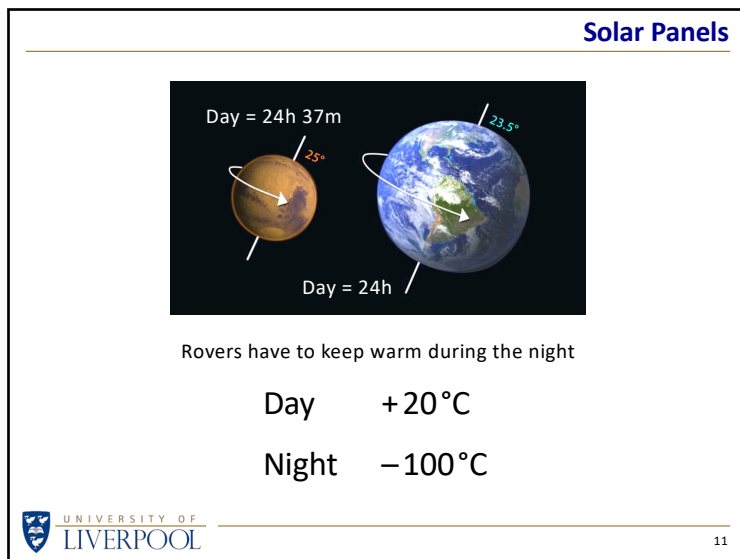
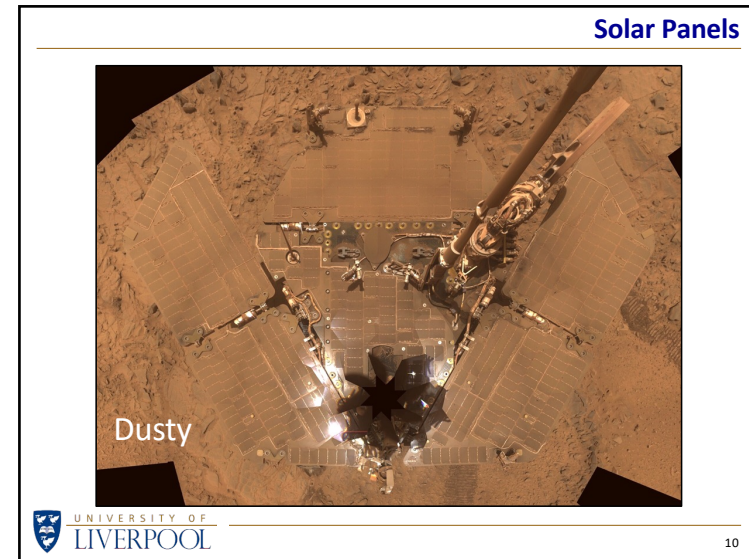
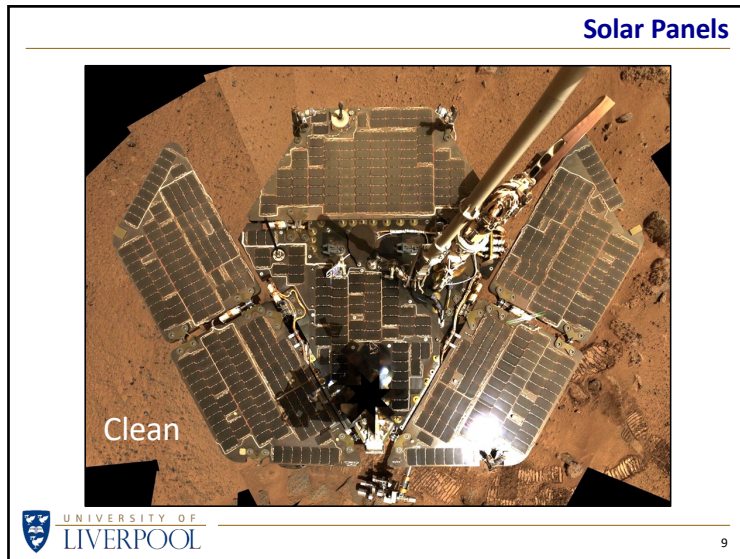
Spirit and Opportunity

CGI

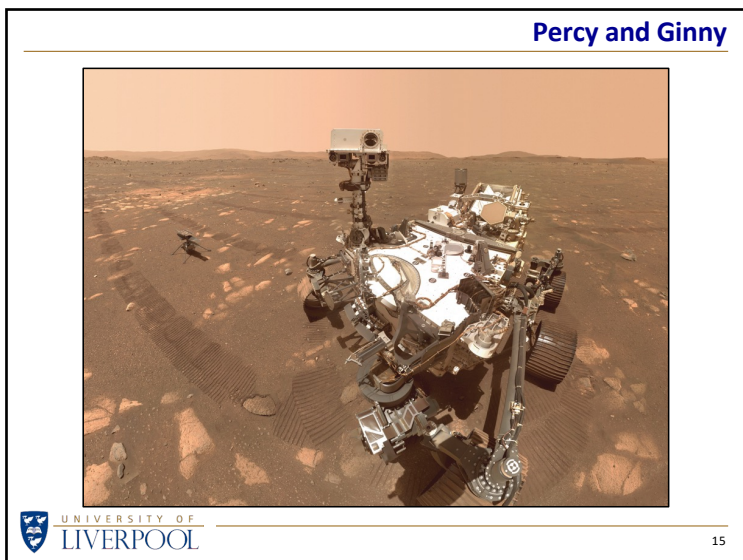
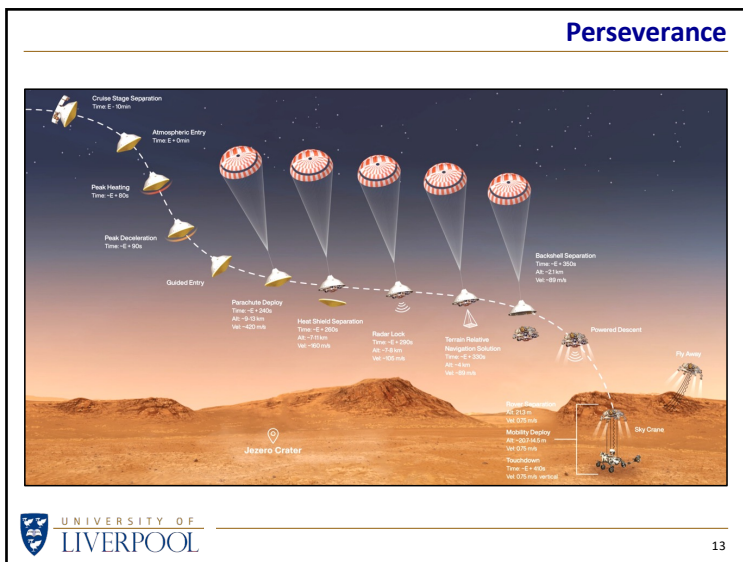


 8

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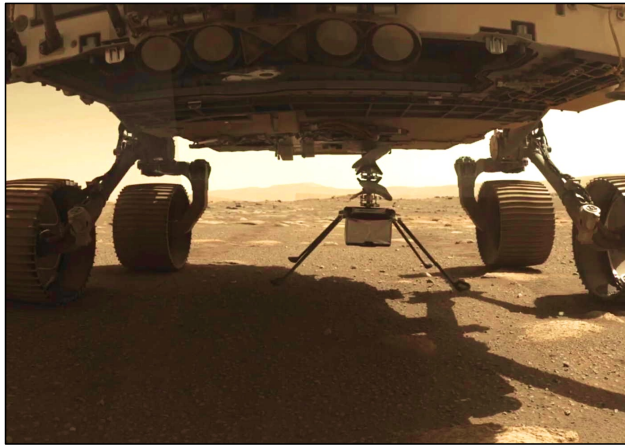


Exploring the Solar System I – Robots on Mars



Exploring the Solar System I – Robots on Mars

Percy Drops Ginny

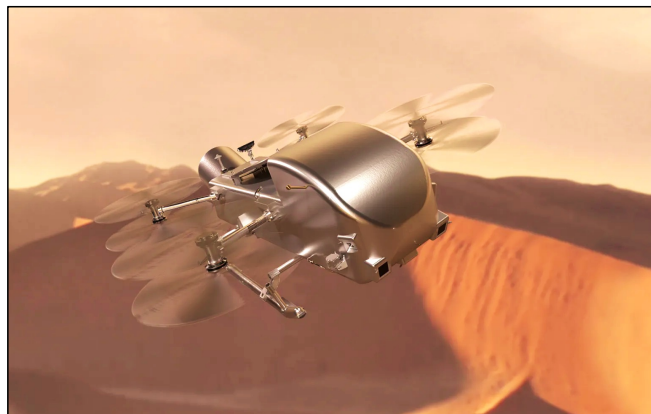


Flight of Ingenuity



CGI

Dragonfly on Titan



Boarding Pass



Exploring the Solar System I – Robots on Mars

Exploring Mars

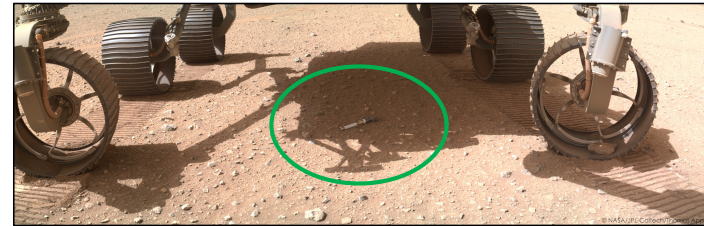
Why explore Mars?

To study its geology and climate

Does life exist, or did it ever exist?

To prepare for human exploration

Mars Sample Return

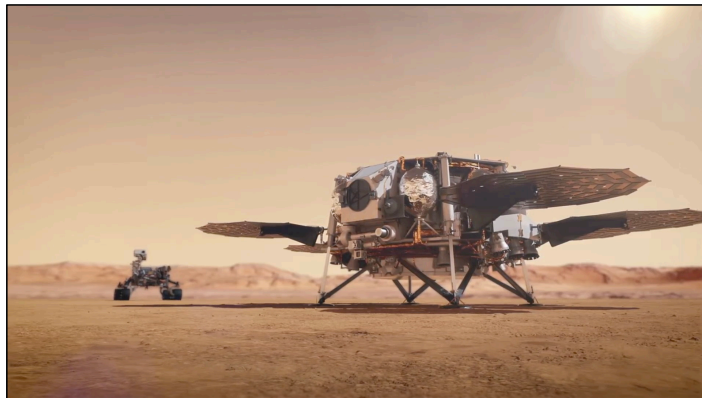


Perseverance is collecting rock and atmosphere samples and leaving a trail of sample tubes behind as it explores the Martian surface.

How will we get these samples back to Earth for more detailed study?

CGI

Mars Sample Return



CGI

Mars Sample Return



Exploring the Solar System I – Robots on Mars

What's Next



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2028



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Airbus UK



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www.liverpool.ac.uk/~sdb/Talks



ROBOTS
ON MARS

Dr Steve Barrett
Norton Priory Feb 2025