

Exploring the Solar System I – Robots on Mars



Exploring the Solar System I **Robots on Mars**

Mars and Martians

Landers and Rovers

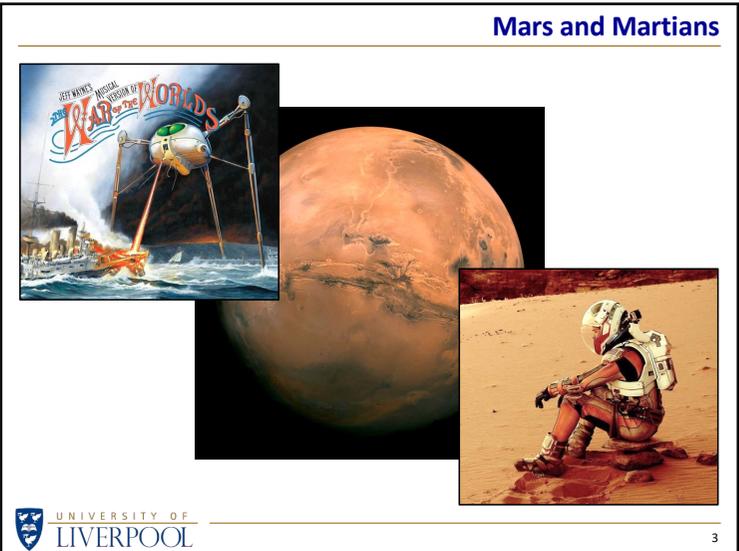
What Have They Found?

What Next?

 UNIVERSITY OF LIVERPOOL

2

Mars and Martians



 UNIVERSITY OF LIVERPOOL

3

Surface of Mars



 UNIVERSITY OF LIVERPOOL

4

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



Carl Sagan provides scale for a model of the Viking lander

First colour images



 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

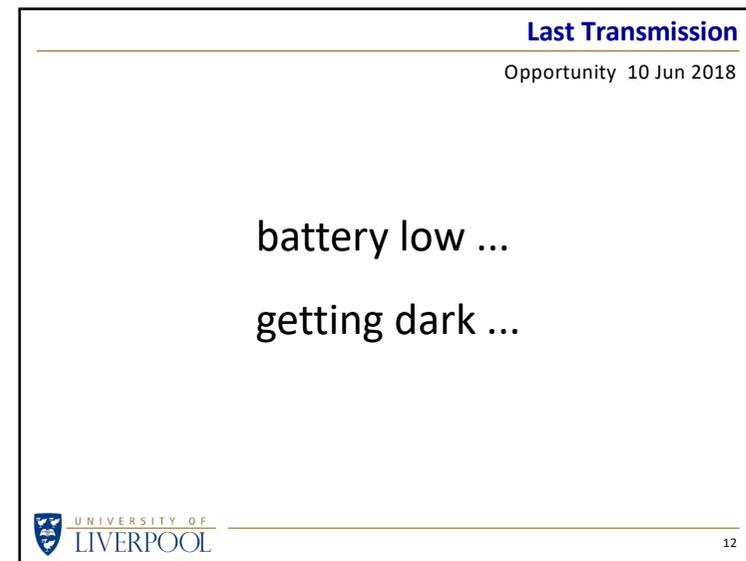
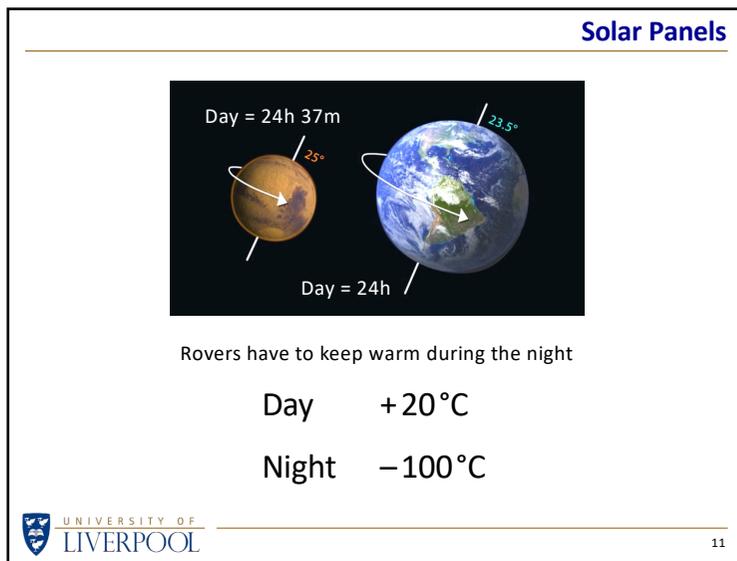
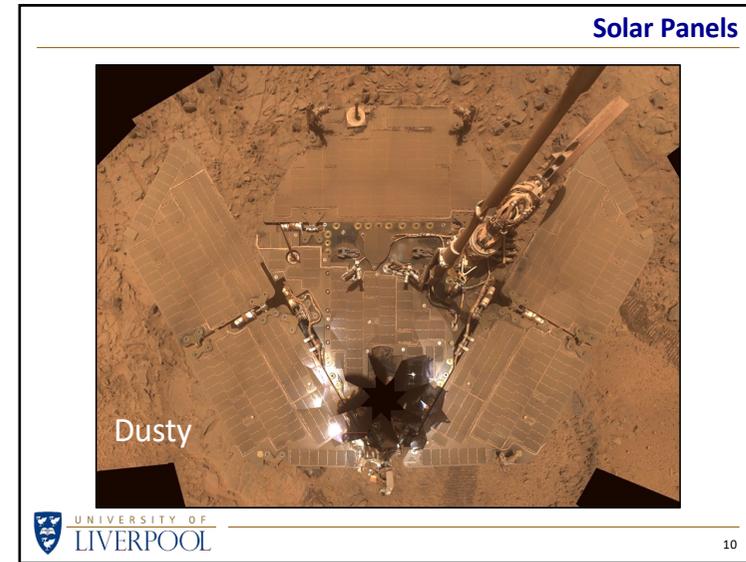
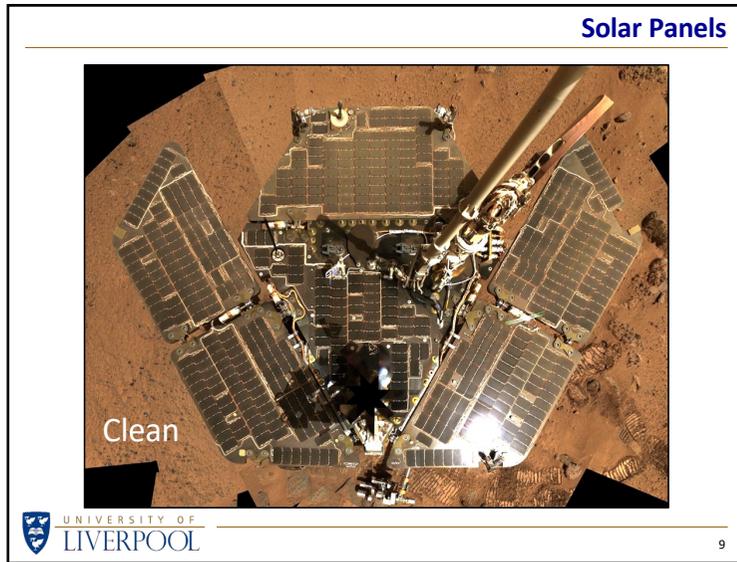
Spirit and Opportunity

CGI

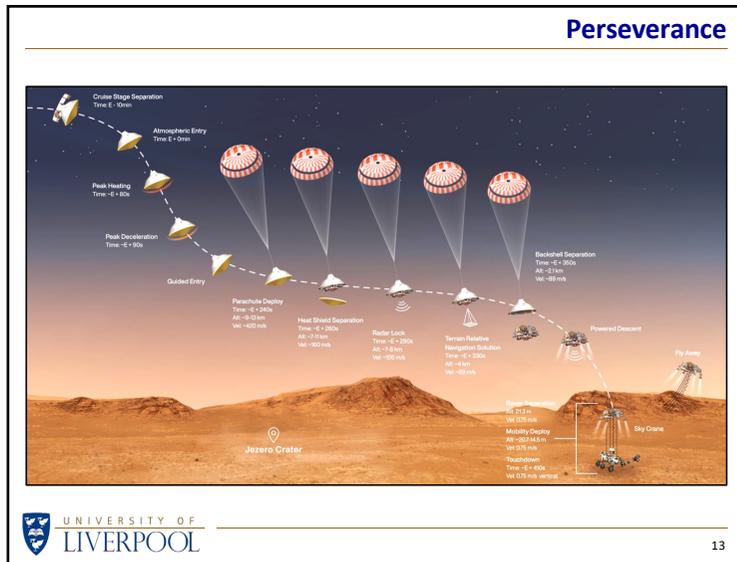


 8

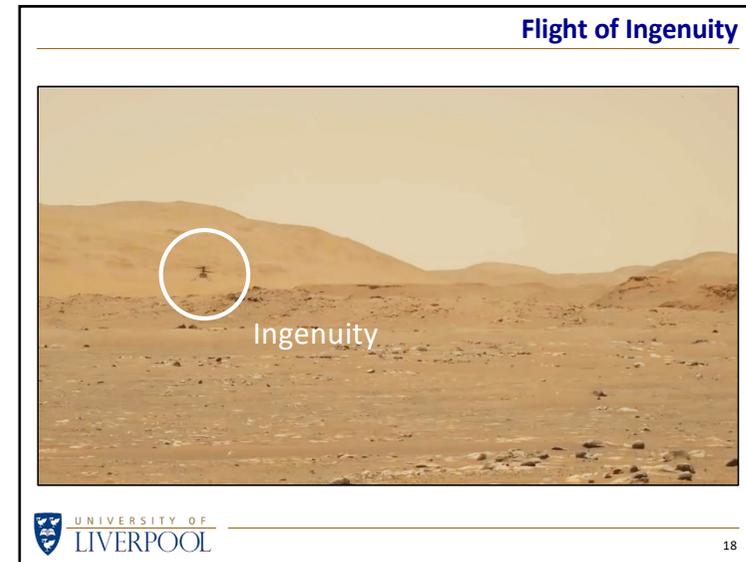
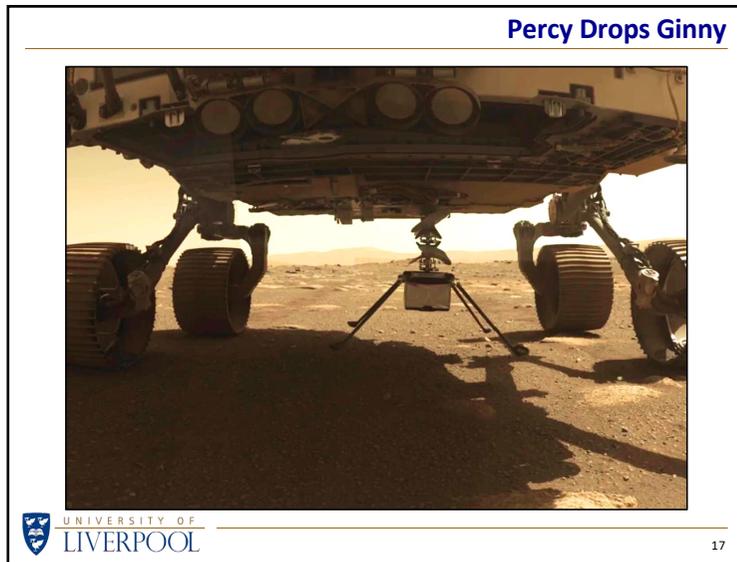
Exploring the Solar System I – Robots on Mars



Exploring the Solar System I – Robots on Mars



Exploring the Solar System I – Robots on Mars



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



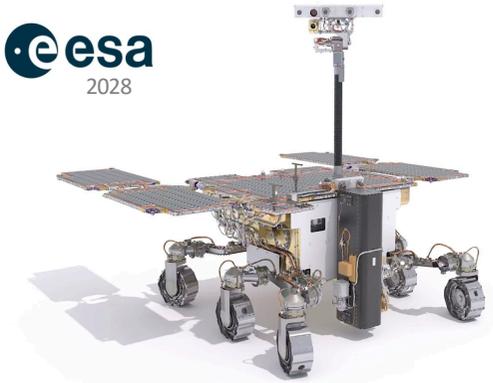
CGI

Mars Sample Return



Exploring the Solar System I – Robots on Mars

What's Next



esa
2028



UNIVERSITY OF
LIVERPOOL

25

Airbus UK



UNIVERSITY OF
LIVERPOOL

26

Want To Know More?



NASA.gov ESA.int CASC.cn



UNIVERSITY OF
LIVERPOOL

27

Exploring the Solar System – I
www.liverpool.ac.uk/~sdb/Talks



ROBOTS
ON MARS

Dr Steve Barrett
BASoc 20 Apr 2026