

ExoMars Aeolian Ridges

Mapping:

Aram Dorsum, Mawrth Vallis, Oxia Planum




Report September 2016

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TAR – Transverse Aeolian Ridge Mapping

						
Coverage Type	20%	50%	100%	Dune	0%	Average Coverage
Mawrth Vallis	32.1	14.1	3.4	3.5	46.9	20.3
Aram Dorsum	4.1	0.8	0.2		95	1.4
Oxia Planum	5.8	2.9	1.5		89.8	4.1

- Method: mapping on HiRISE images at 1:2000 scale.
- 20% areas is where 20% of the ground surface covered by TARS etc.
- In addition, for Mawrth, dune landforms (not TARS) were mapped as these were found to be a significant proportion of the ground surface
- Each mapping grid square is 6.25 E6 m².

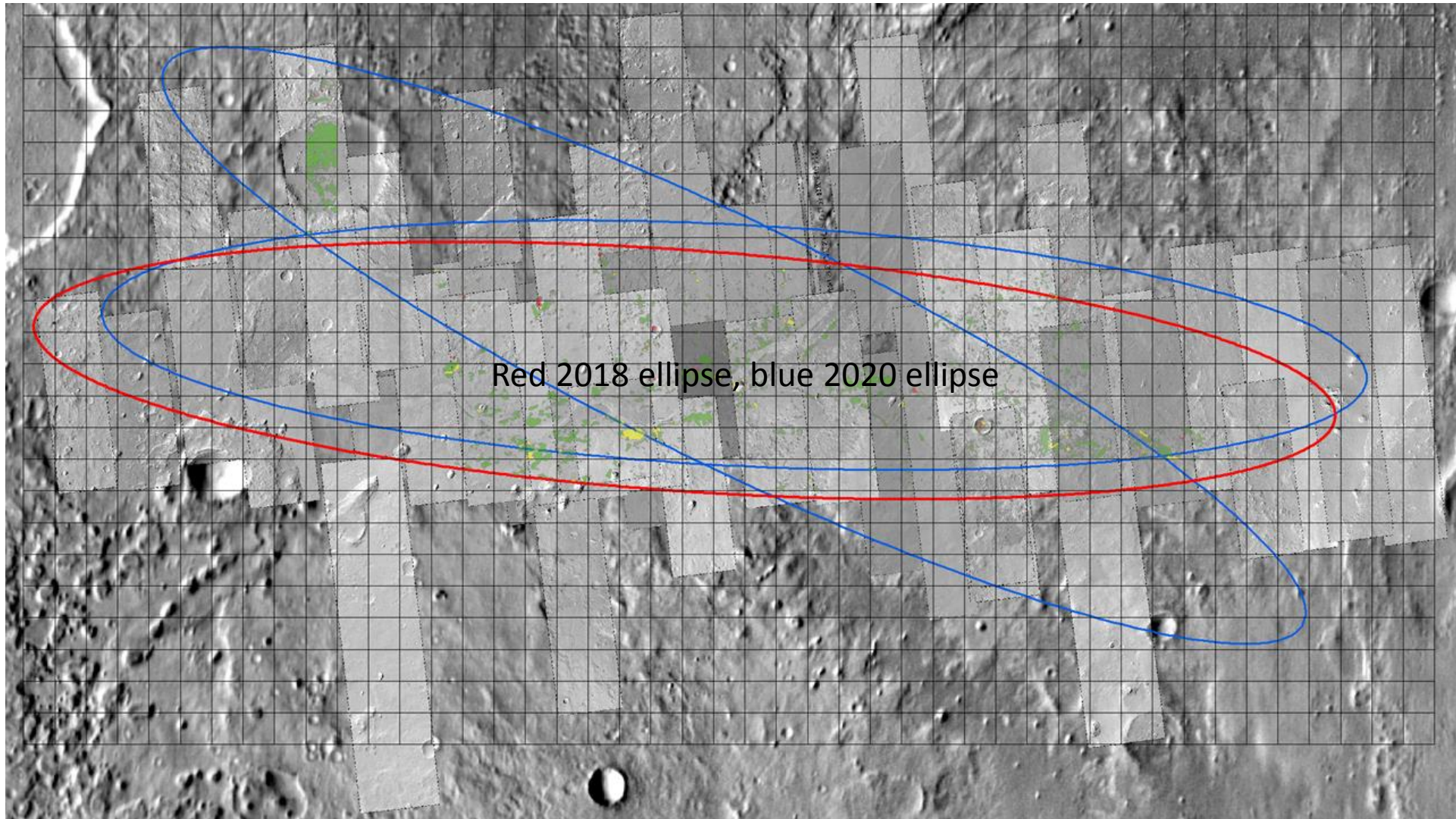
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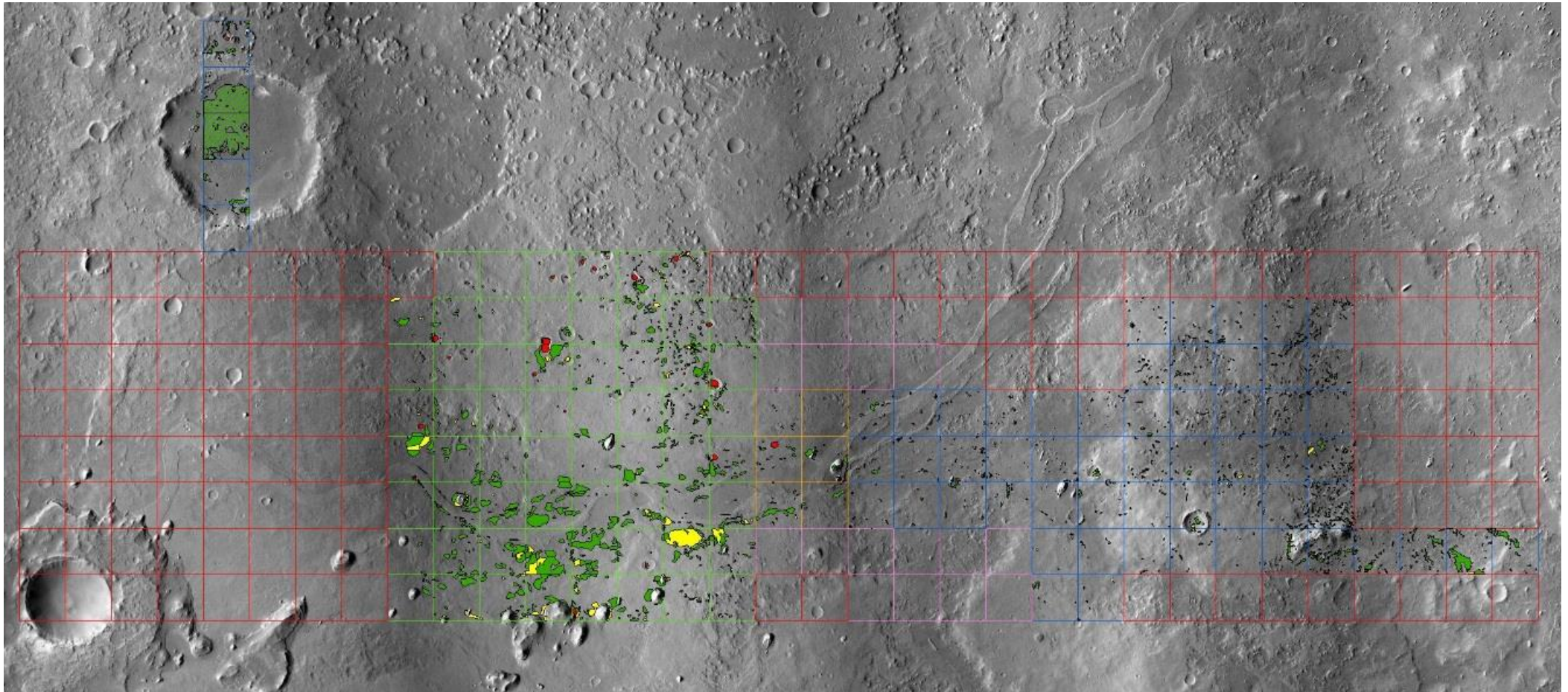
Summary:

1. Very high proportion of aeolian material at Mawrth.
2. Oxia and Aram both have areas (grid squares) of relatively high total aeolian cover <14 % but Oxia also has a very high N-S band to the east of the ellipses' centre ($\leq 43\%$)
3. Height of the frequent aeolian bedforms (separate project) may be problematic for ExoMars sinkage and slippage

Aram Dorsum (with landing ellipses)

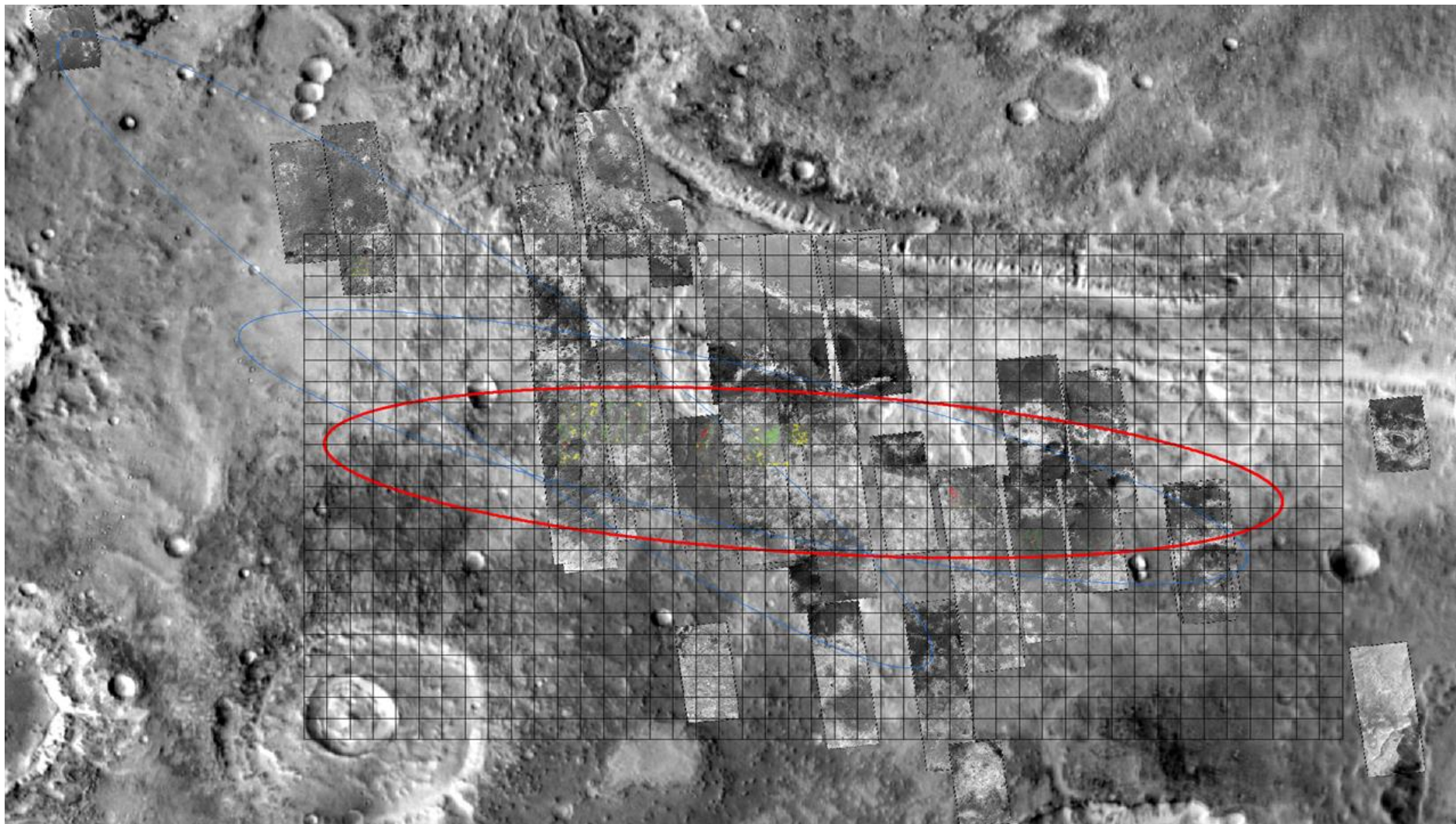


Aram Dorsum Mapping Grid (with total % TAR coverage)



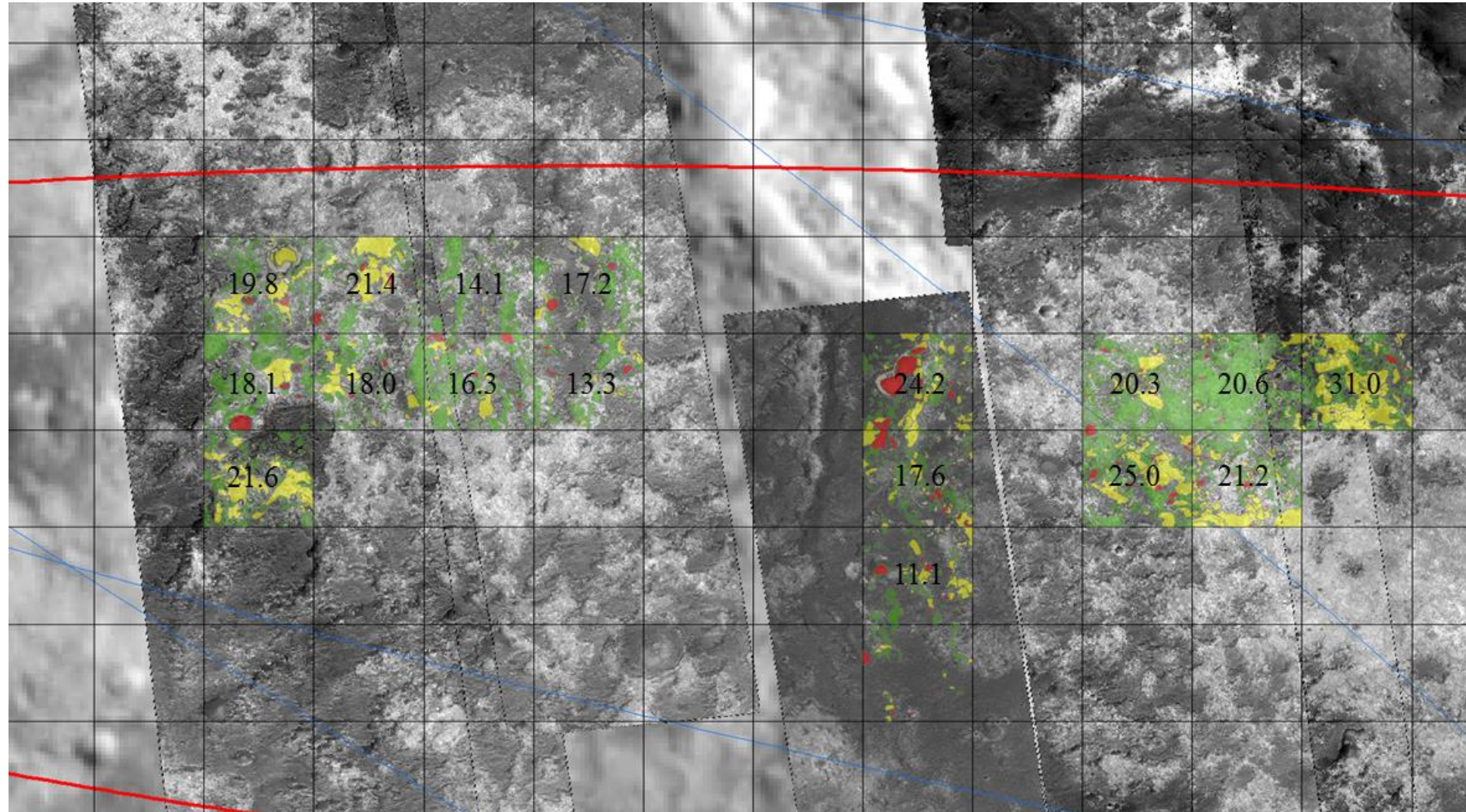
Total area mapped $7.1E8 \text{ m}^2$

Mawrth Vallis

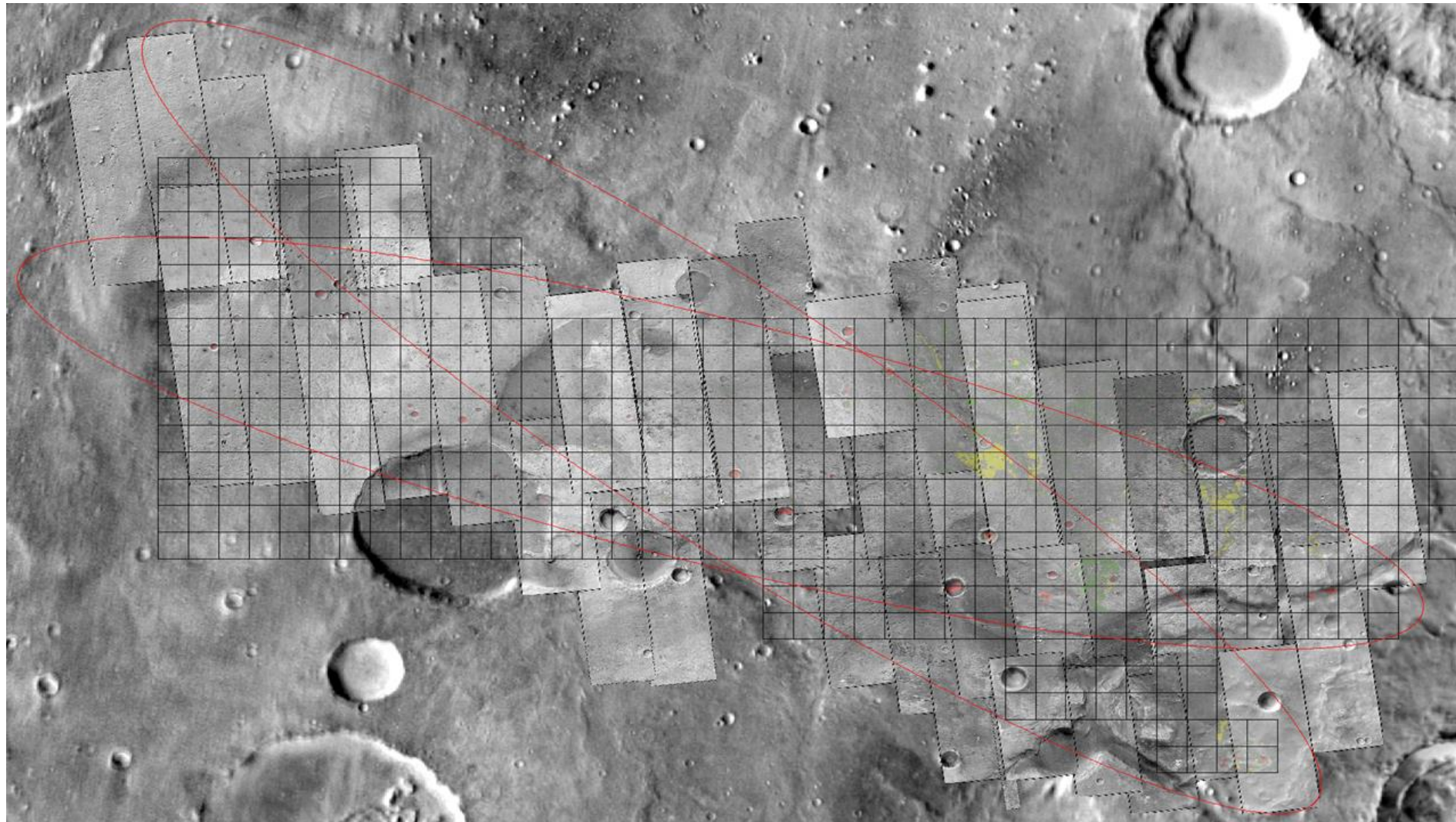


Red 2018 ellipse, blue 2020 ellipse
18 grid squares, $1.4 \text{ E}8 \text{ m}^2$ mapped

Mawrth Vallis mapping Grid Squares examples (with total % aeolian cover)



Oxia Planum



Red 2018 ellipse, blue 2020 ellipse
1.8 E8 m² mapped

