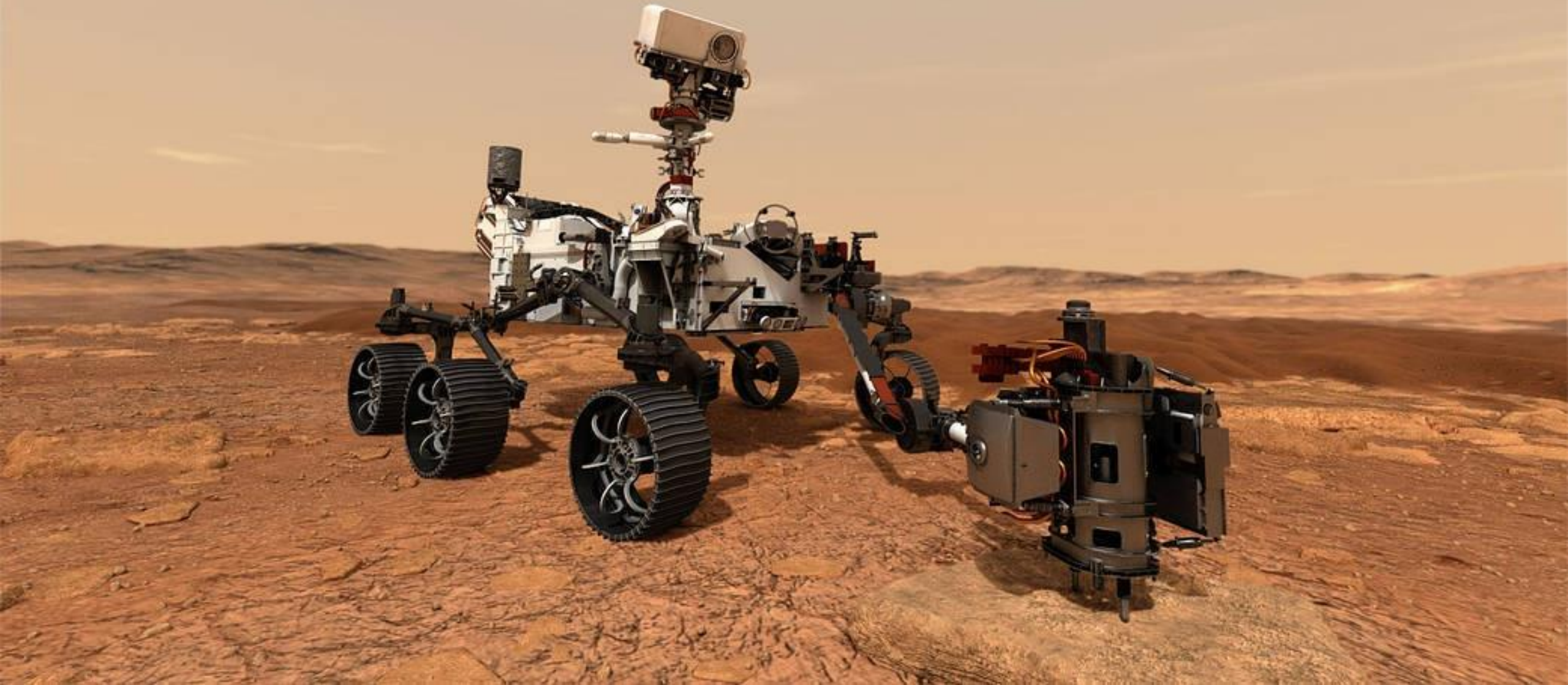


Perseverance : 4 jaar op Mars



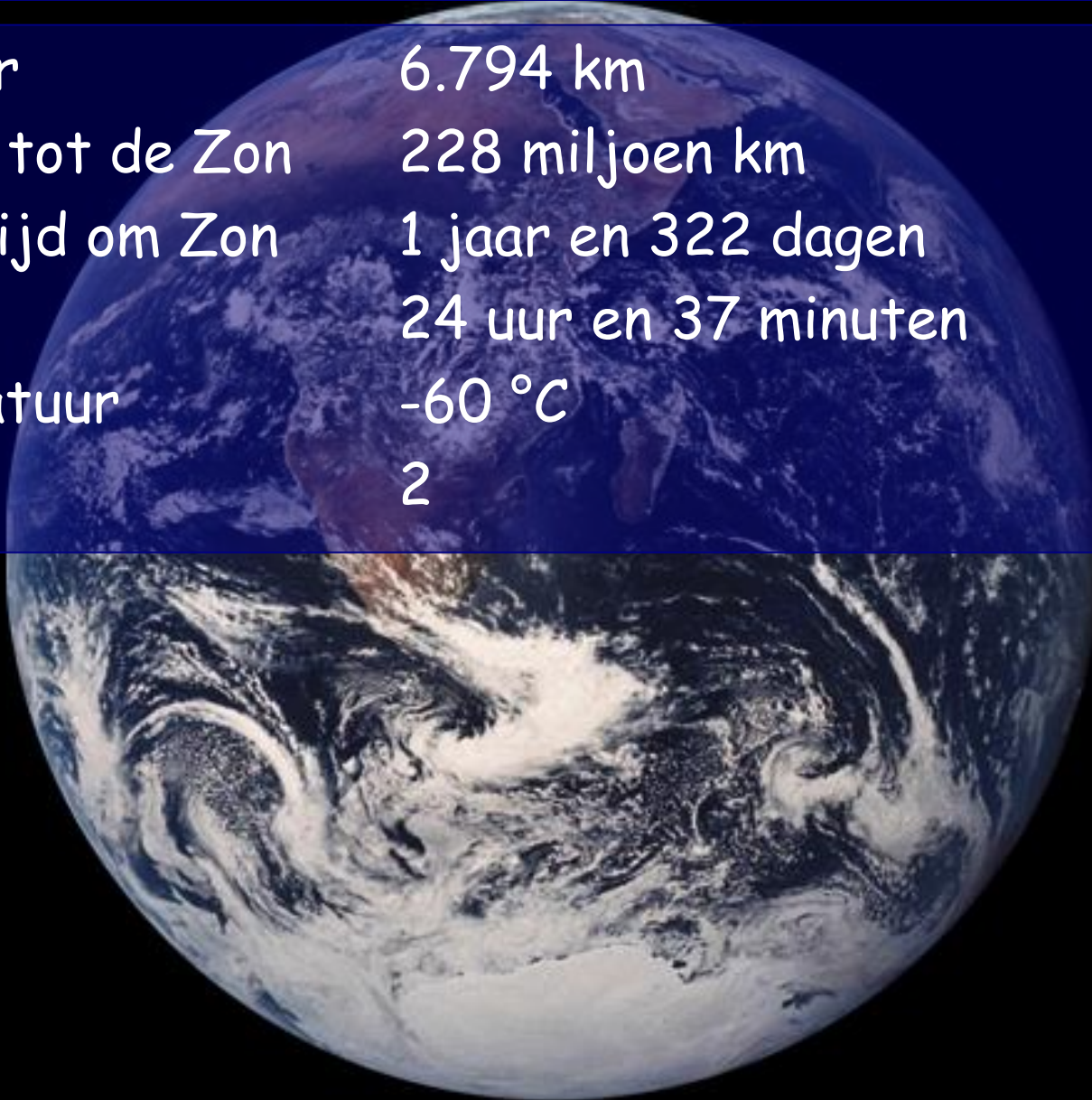
PERSEVERANCE 'Volharding' (NASA)

Lancering 30 juli 2020 ; landing 18 februari 2021



Mars

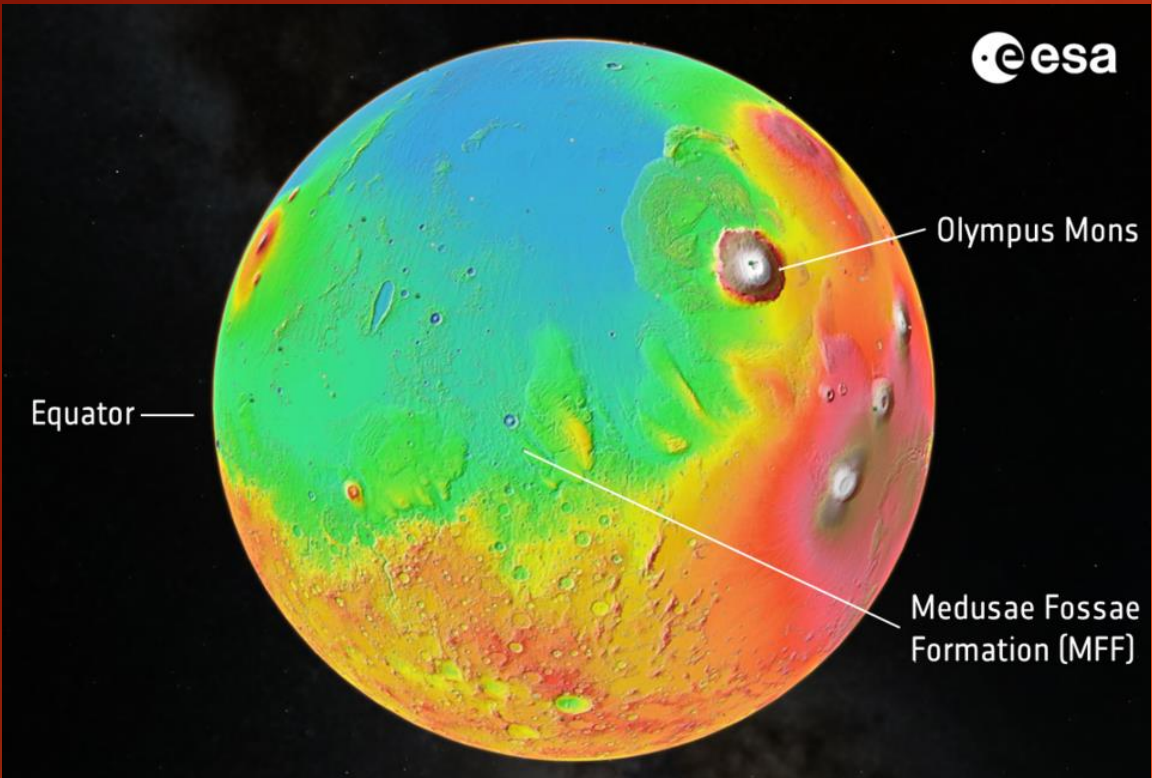
- Diameter 6.794 km
- Afstand tot de Zon 228 miljoen km
- Omlooptijd om Zon 1 jaar en 322 dagen
- Rotatie 24 uur en 37 minuten
- Temperatuur -60°C
- Manen 2



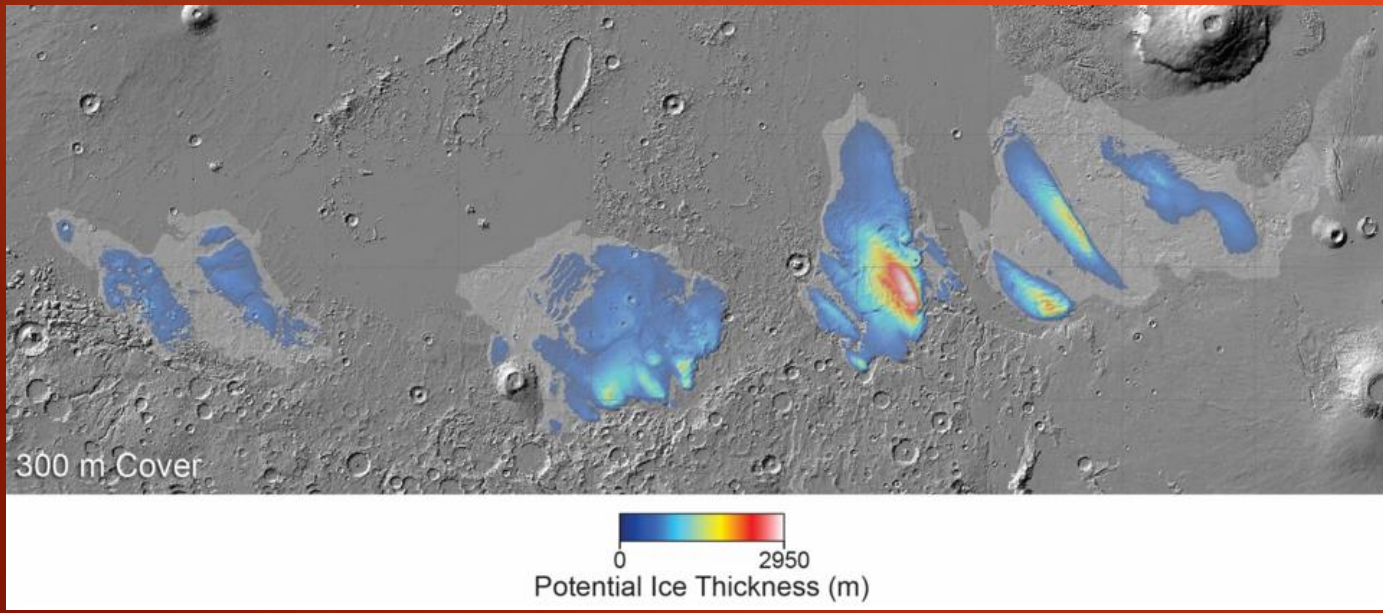
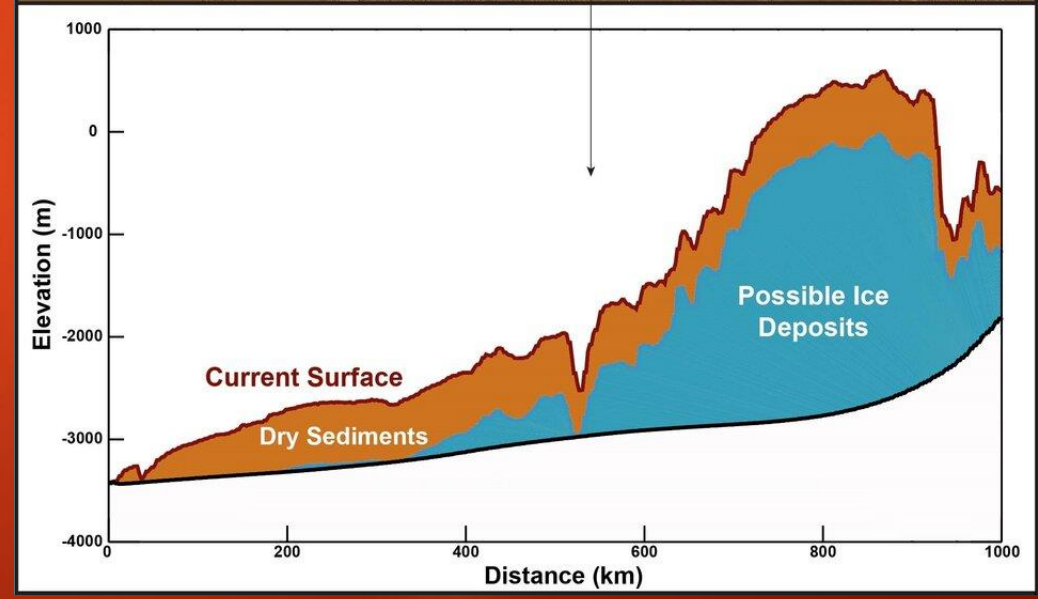
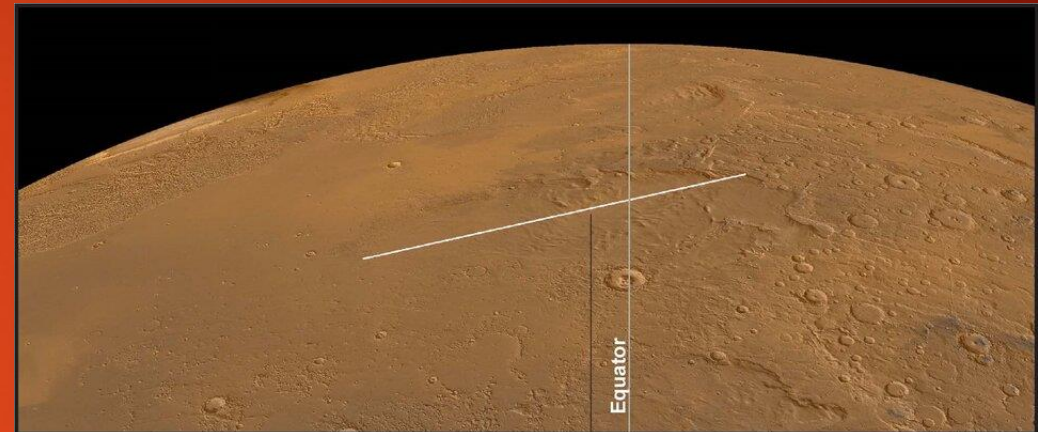
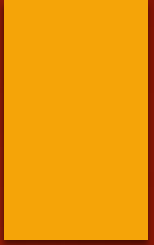


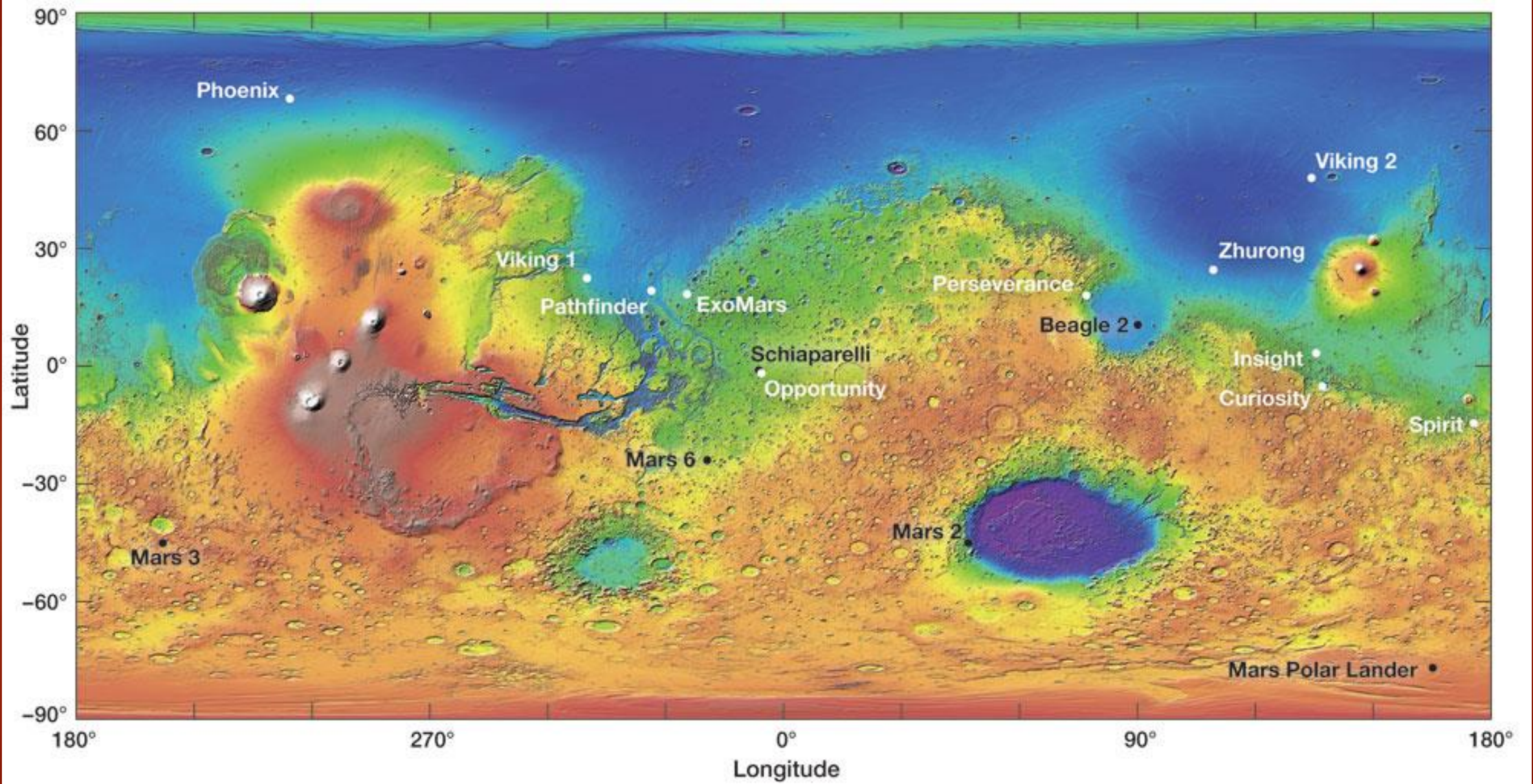
MOM

इसरा | डिजिट



2024: Mars Express –
 Bij evenaar dikke ijspakketten?
 (tot 3km onder ca. 1 km dikke sedimentlaag ?)







PERSEVERANCE

Doel: achterhalen of er leven op Mars is, of in elk geval ooit heeft bestaan → 'biosignalen'

Instrumentarium:

Mastcam-Z : panorama- en stereofoto's / video's

Supercam : chemische samenstelling en mineralen (incl. laser, tot 7m)

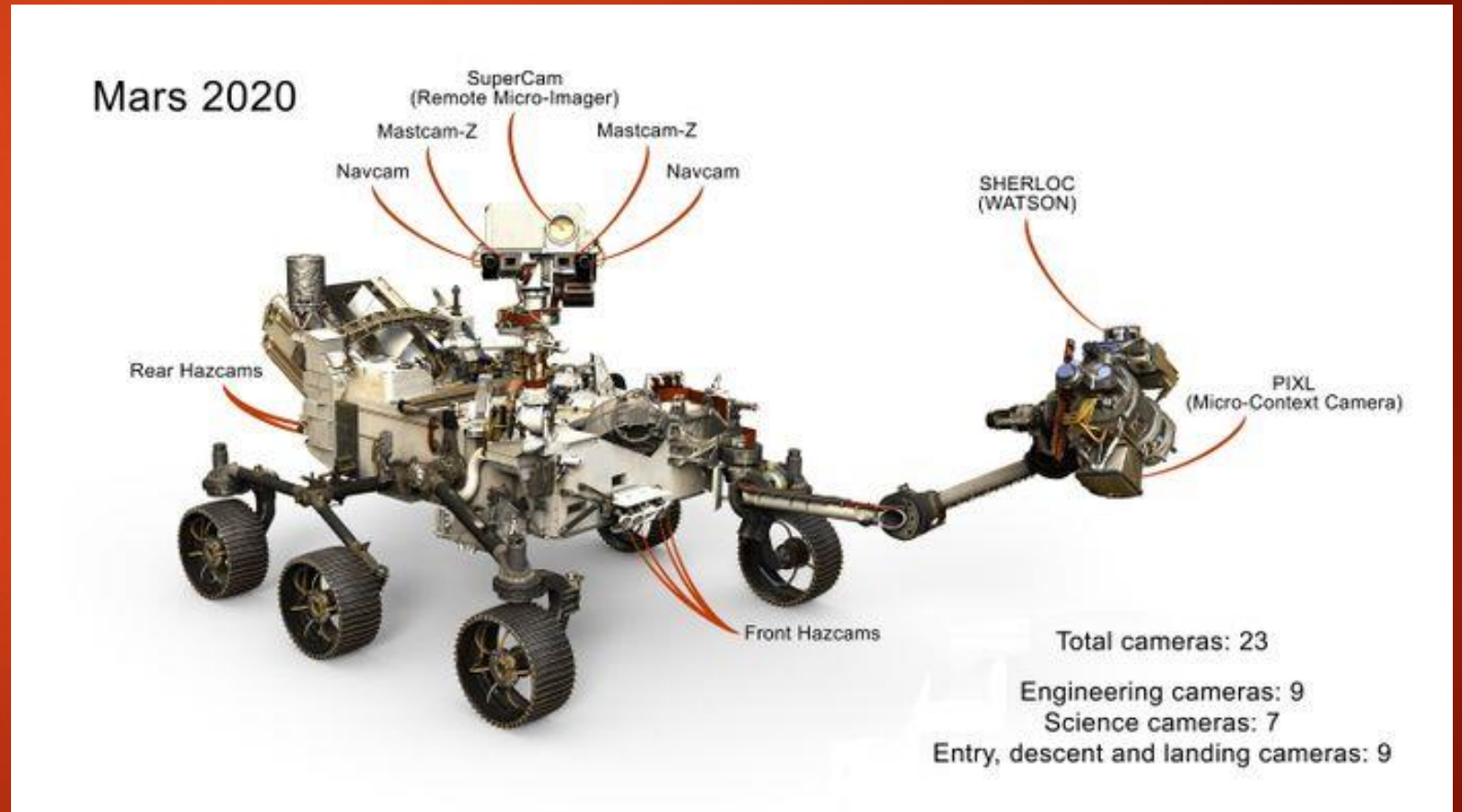
PIXL : röntgen-fluorescentie-spectrometer

MEDA : weerstation

RIMFAX : radar-metingen bodemstructuur (tot 10m diep)

MOXIE : test maken zuurstof uit kooldioxide

.....





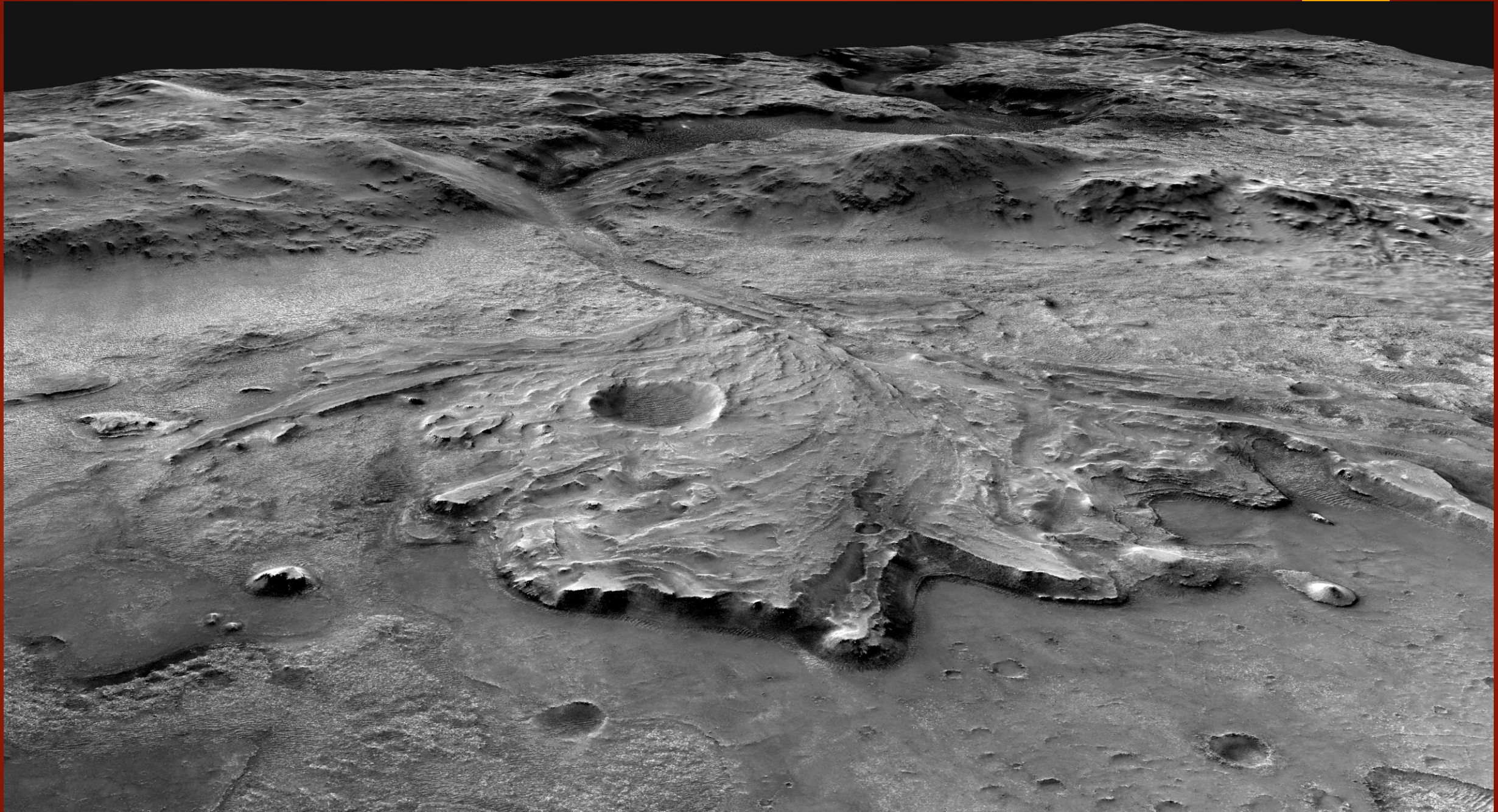
Jezero krater

45km doorsnede

Ca. 3,97 miljard jaar oud

Tot ca. 3,8 miljard jaar
geleden vloeibaar water



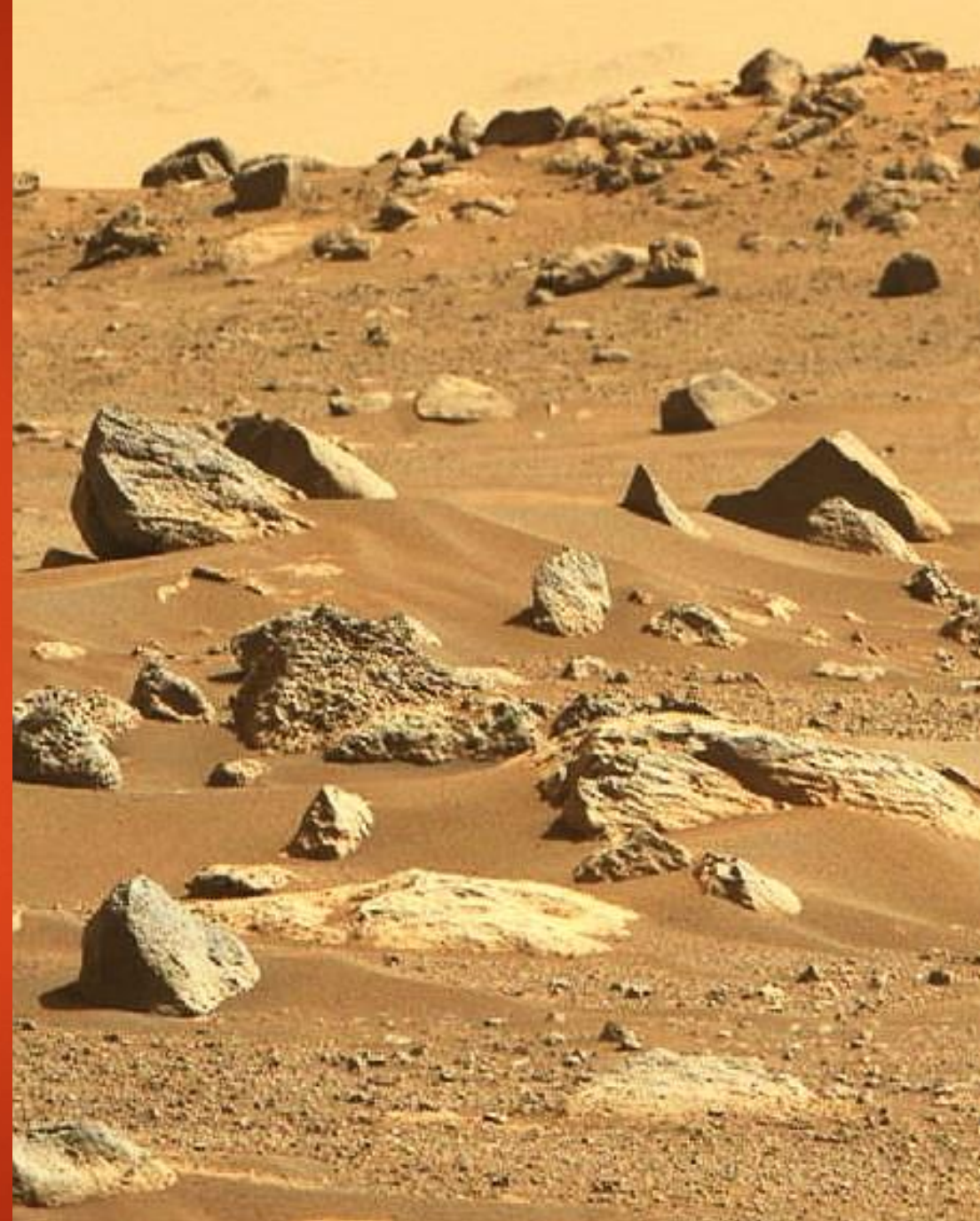


Landing 18 feb 2021





Perseverance in
bewerkte HiRise-
opname



Ingenuity – 1e Mars-helicopter



'Vernuftigheid'

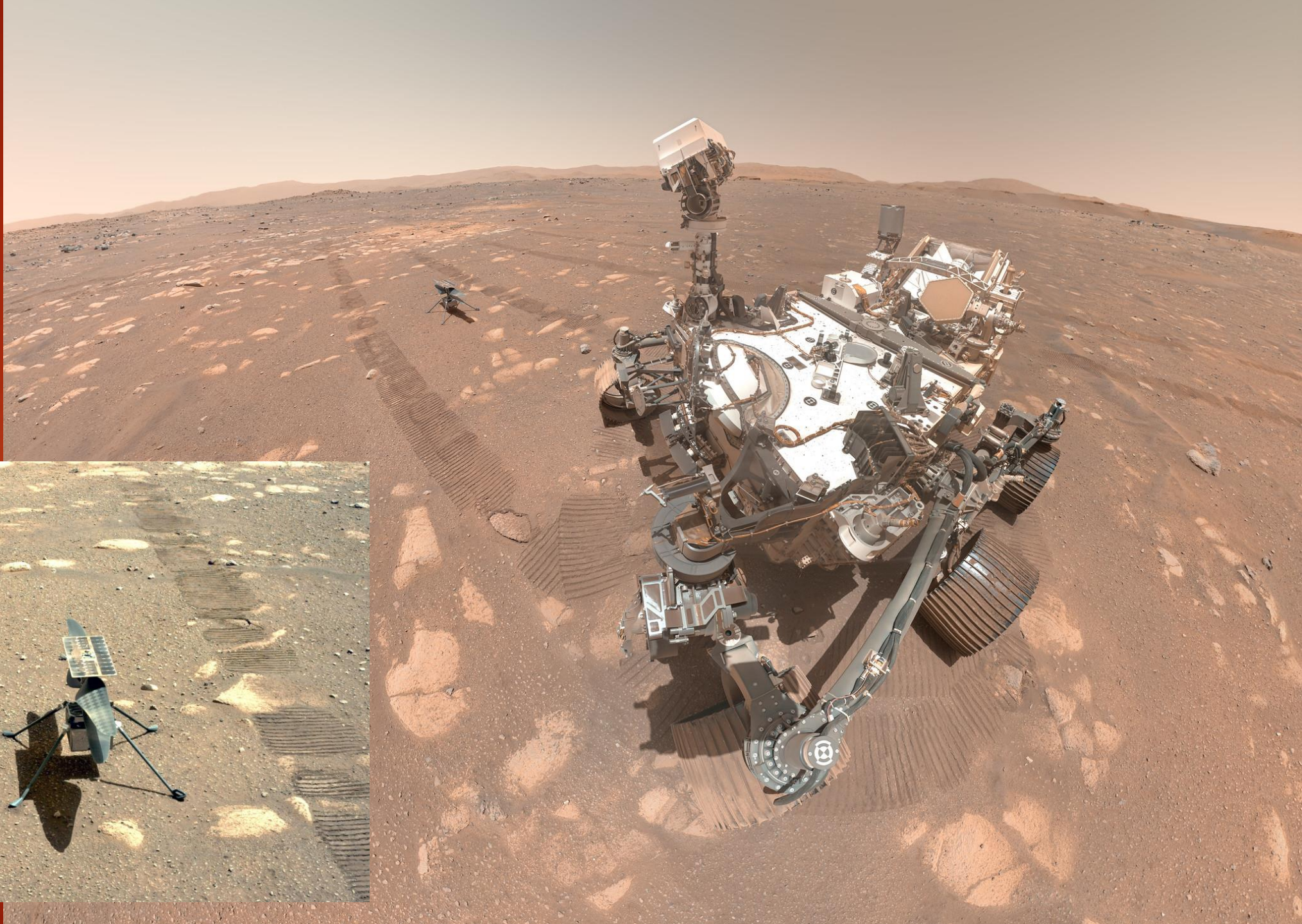
Spanwijdte 1.2m

Hoogte 0.5 m

1.8 kg

Alleen camera's

5 korte test-
vluchten



Eerste succesvolle (korte) testvlucht op 19 april 2021

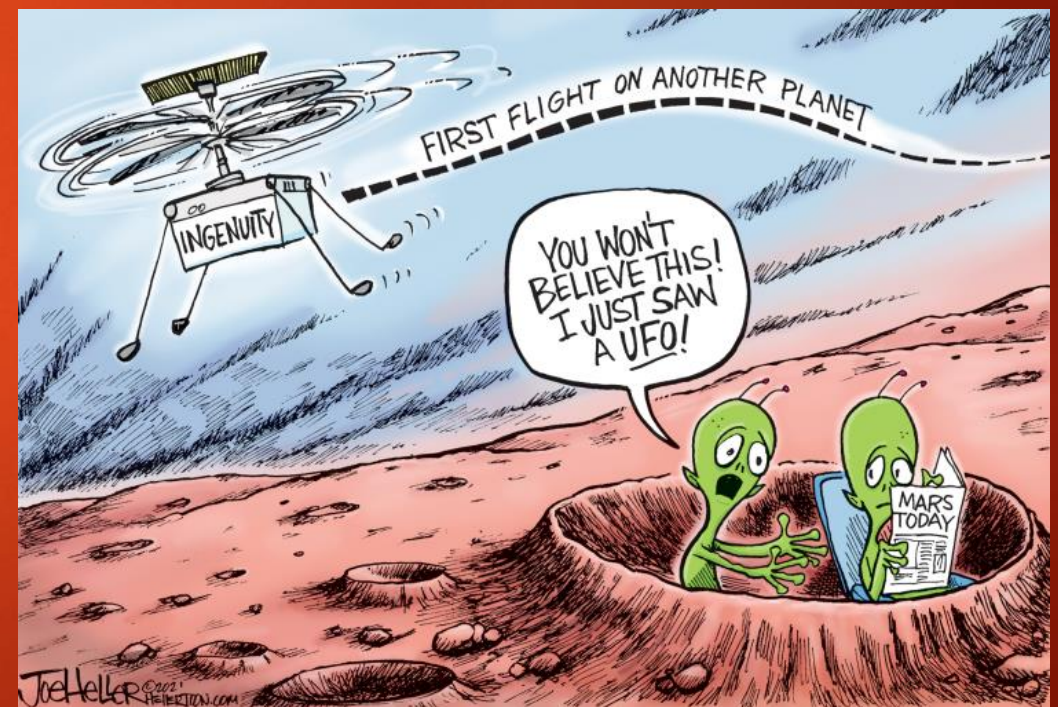
Hoogte 3m Duur 40s Rotor (1.2m lengte!) 2500 RPM (ca. 40/sec!)

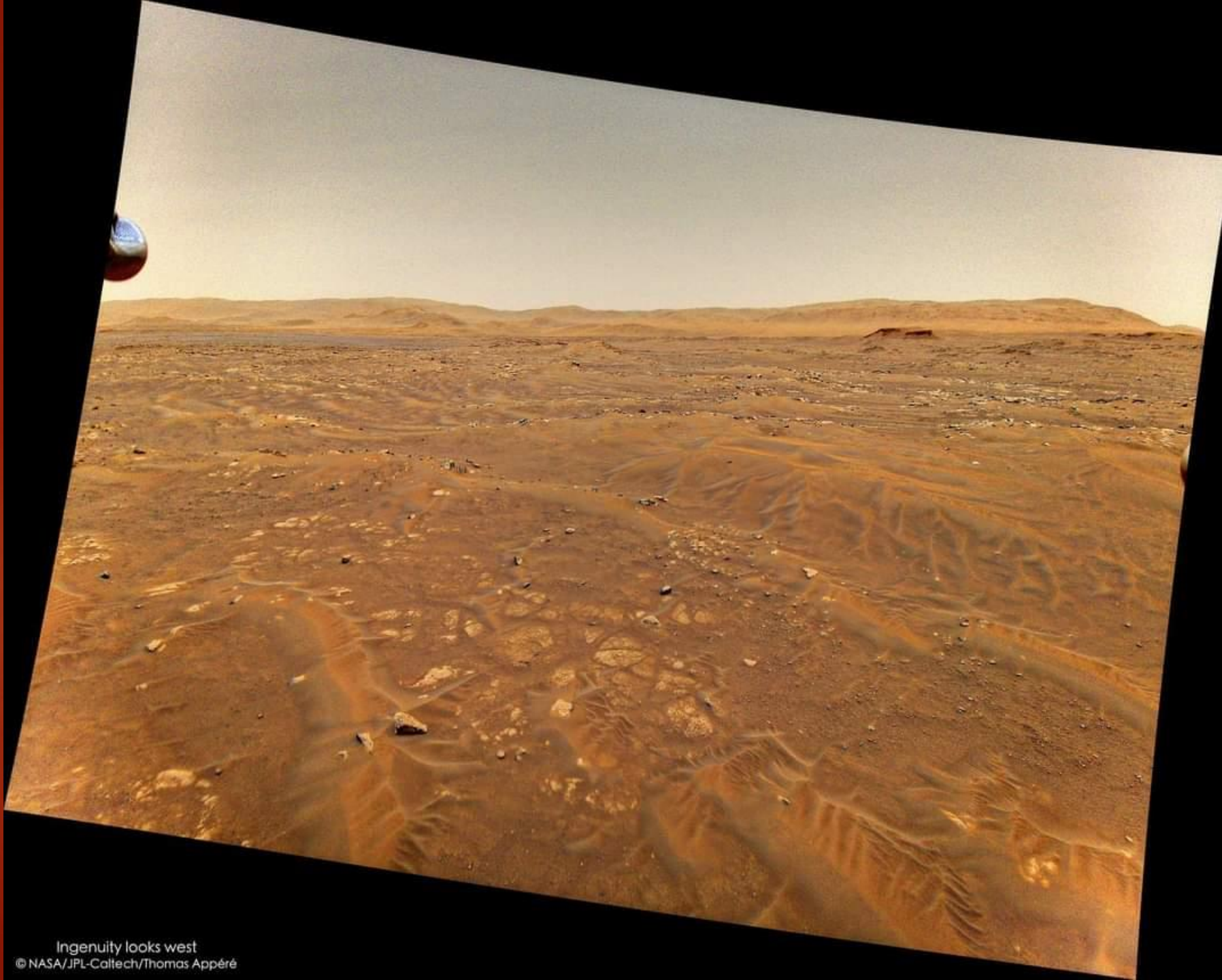


3^e vlucht op
25 april 2021



Opname vanaf 5 m hoogte door Ingenuity tijdens 3^e vlucht op 25 april 2021





5 succesvolle
testvluchten
(19 april t/m 7 mei)
daarna verlengde
missie...

foto van Séithah
door Ingenuity
vanaf 10m hoogte
tijdens 6^e vlucht op
22 mei 2021



Mei 2021 : Perseverance
begonnen aan missie in Jezero

'Self-driving' 120 m/u

(vgl. Curiosity 20 m/u)

(Ingenuity 5m/s ! = 18km/u)



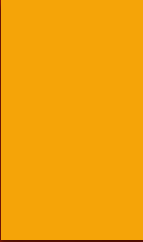
Watson -
camera

Dust Devils



20 juli 2021
(sol 148)

Geluiden op Mars



Laser



Rijdende rover



Wind



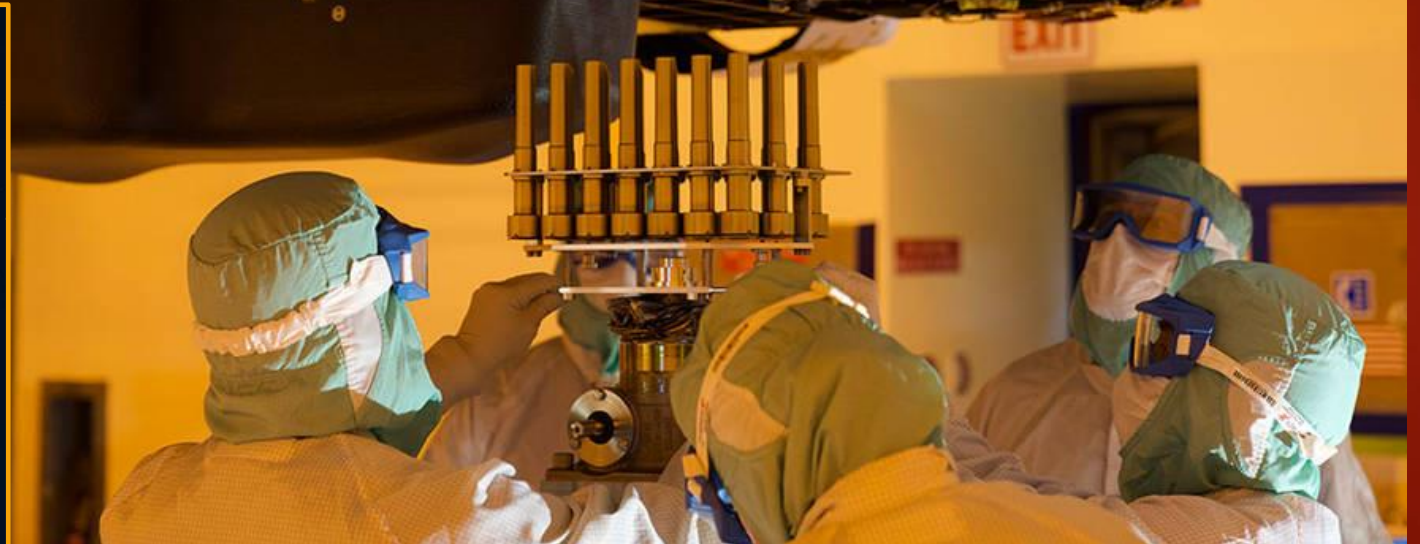
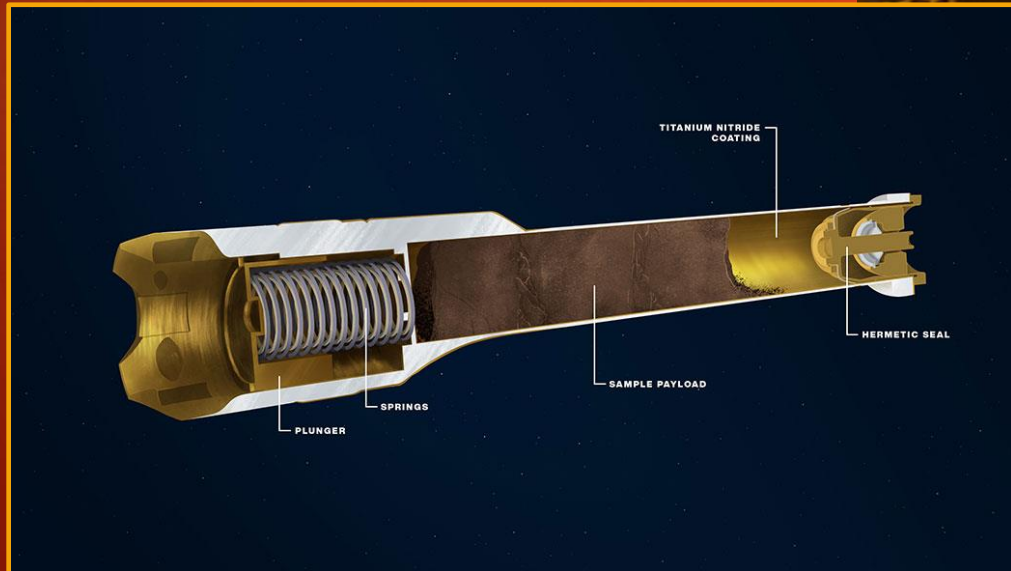
25 juni 2021
(sol 123)

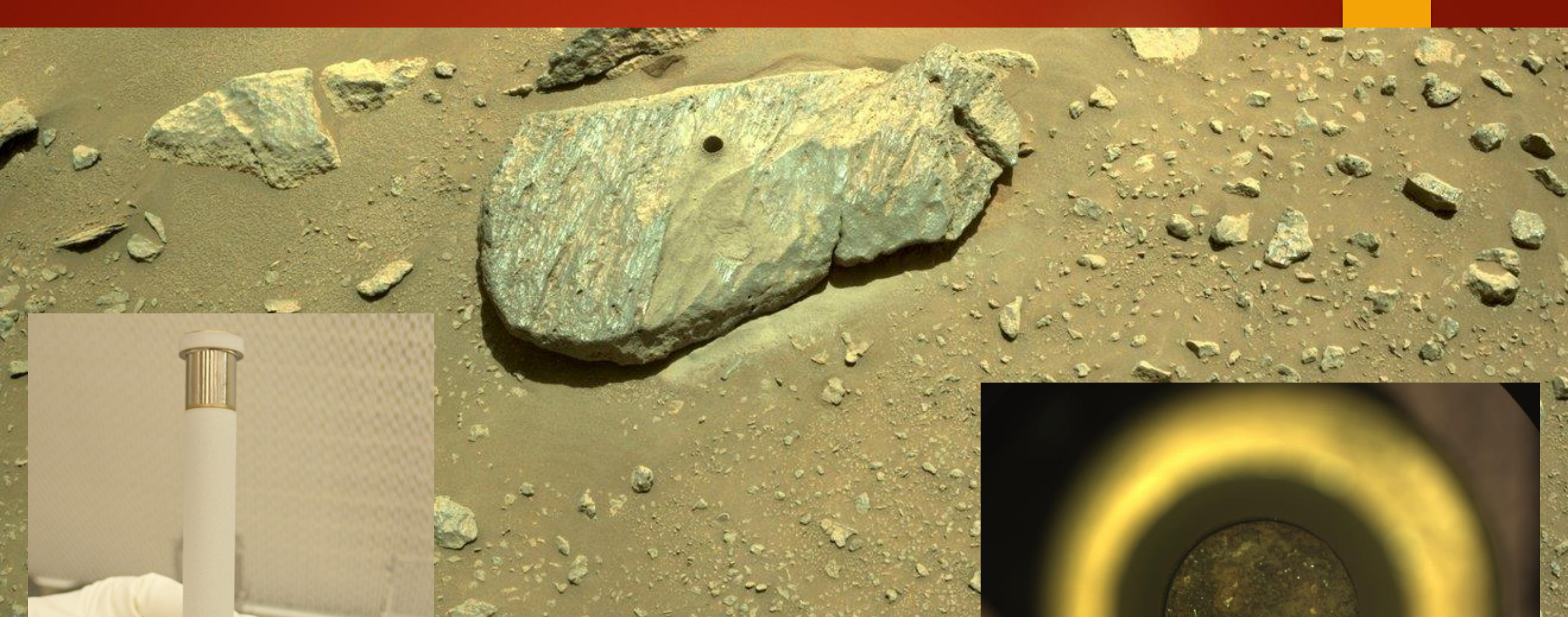
PERSEVERANCE: 1e fase Sample Return

Ca. 19 sample-locaties

Tot ca. 5 cm diep

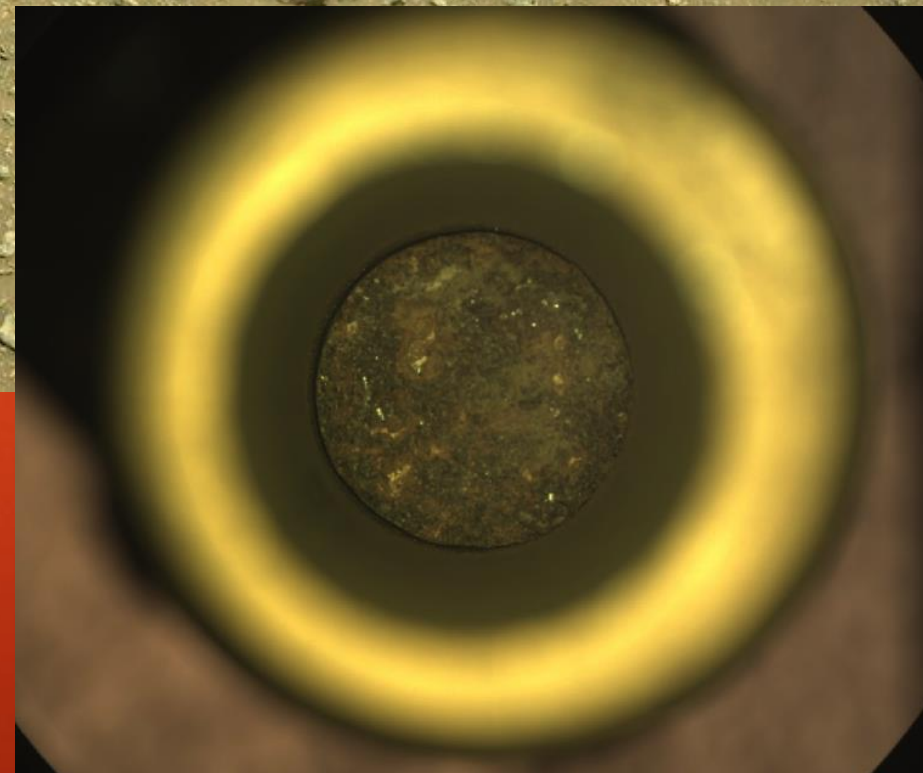
Containers met 35 titanium
buisjes (plus 4 controle
'blanks')





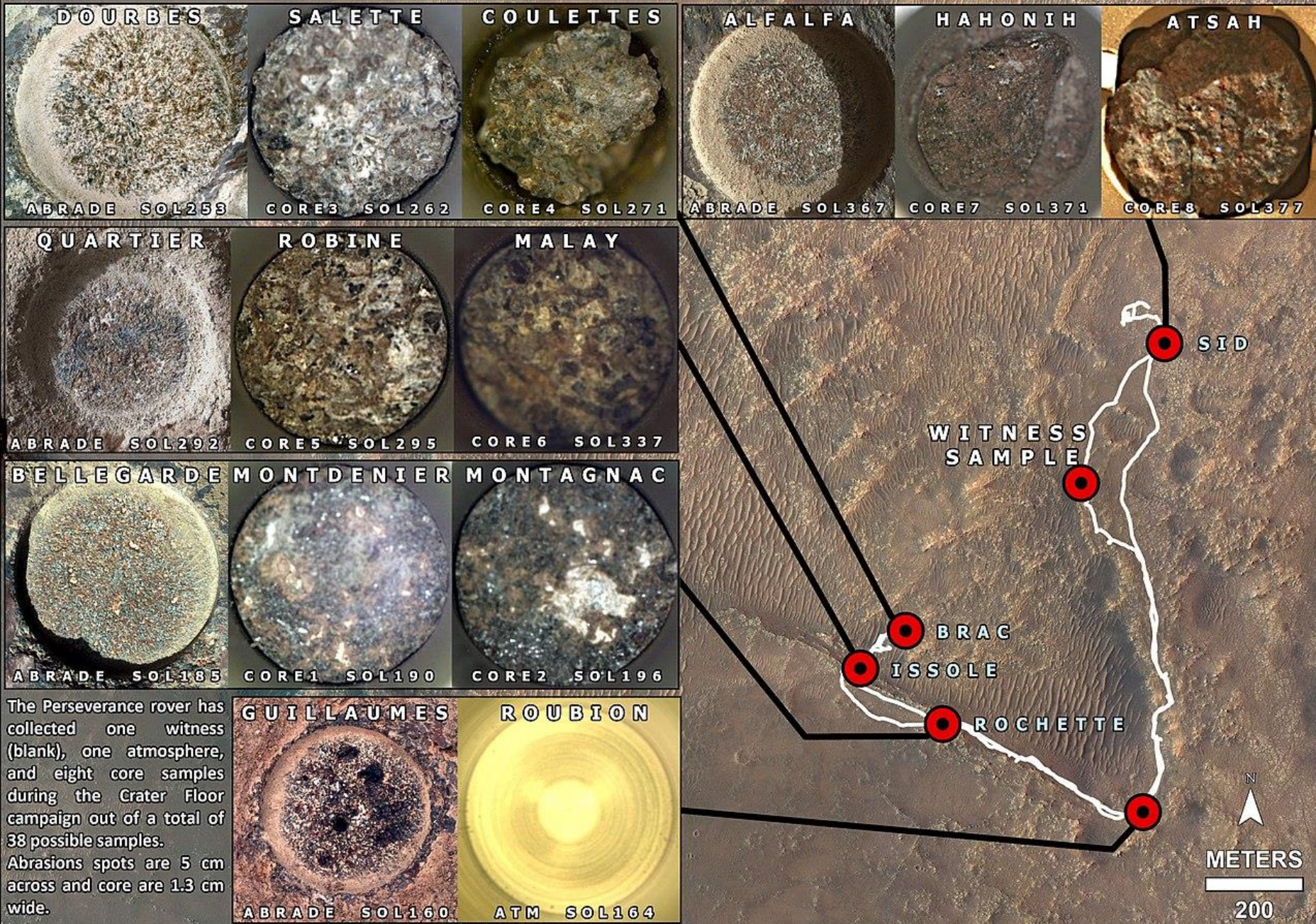
Rotsblok 'Rochette'
met eerste boorgat
1 september 2021

(breedte rots ca. 40cm)





Sample Collection Map: Cores 1-8



The Perseverance rover has collected one witness (blank), one atmosphere, and eight core samples during the Crater Floor campaign out of a total of 38 possible samples. Abrasions spots are 5 cm across and core are 1.3 cm wide.

Augustus 2021
t/m maart 2022
8 core-samples



Nr. 8 - 13 maart 2022 (sol 377)

Sol 238 -
oktober 2021



Sol 275 -
28 nov 2021



Sol 353 -
16 feb 2022



'Santa Cruz'



PERSEVERANCE 317-SOUTH SET14H
© NASA/JPL-Caltech/MSSS

30 maart 2022
(sol 395)

Cirkelvormige
sediment-heuvel



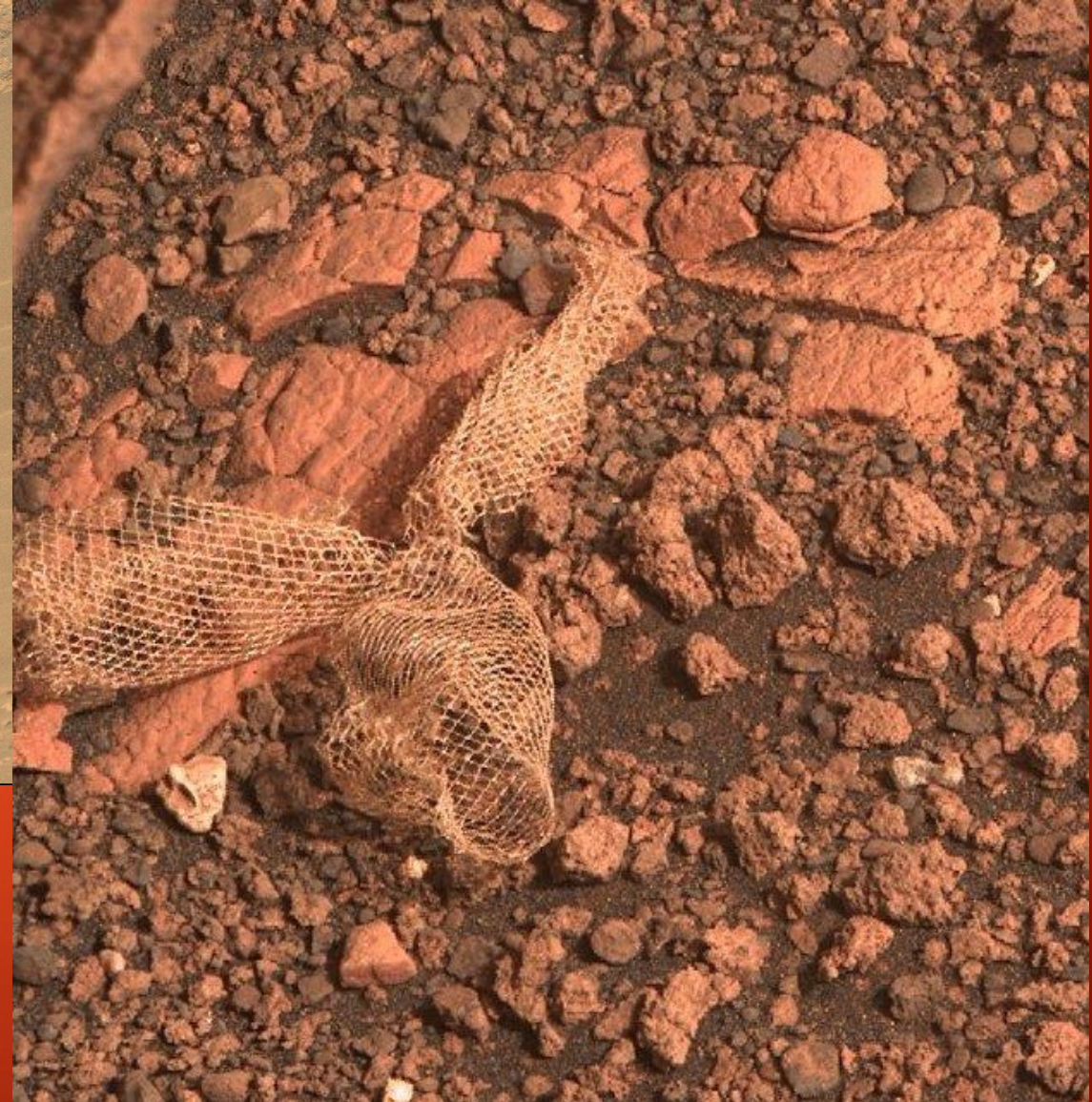




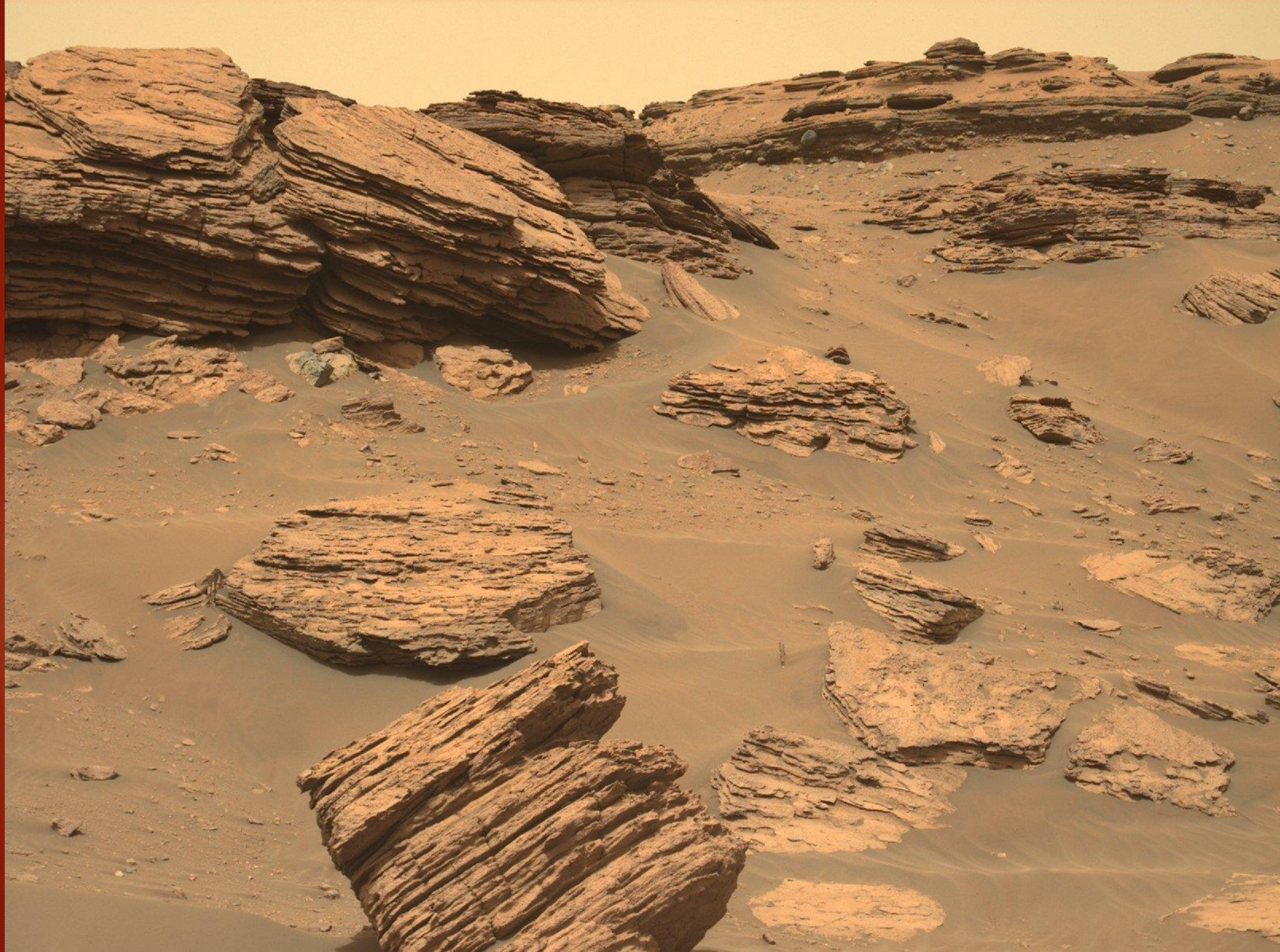
Sol 424 -
30 april 2022



'Enchanted Lake'



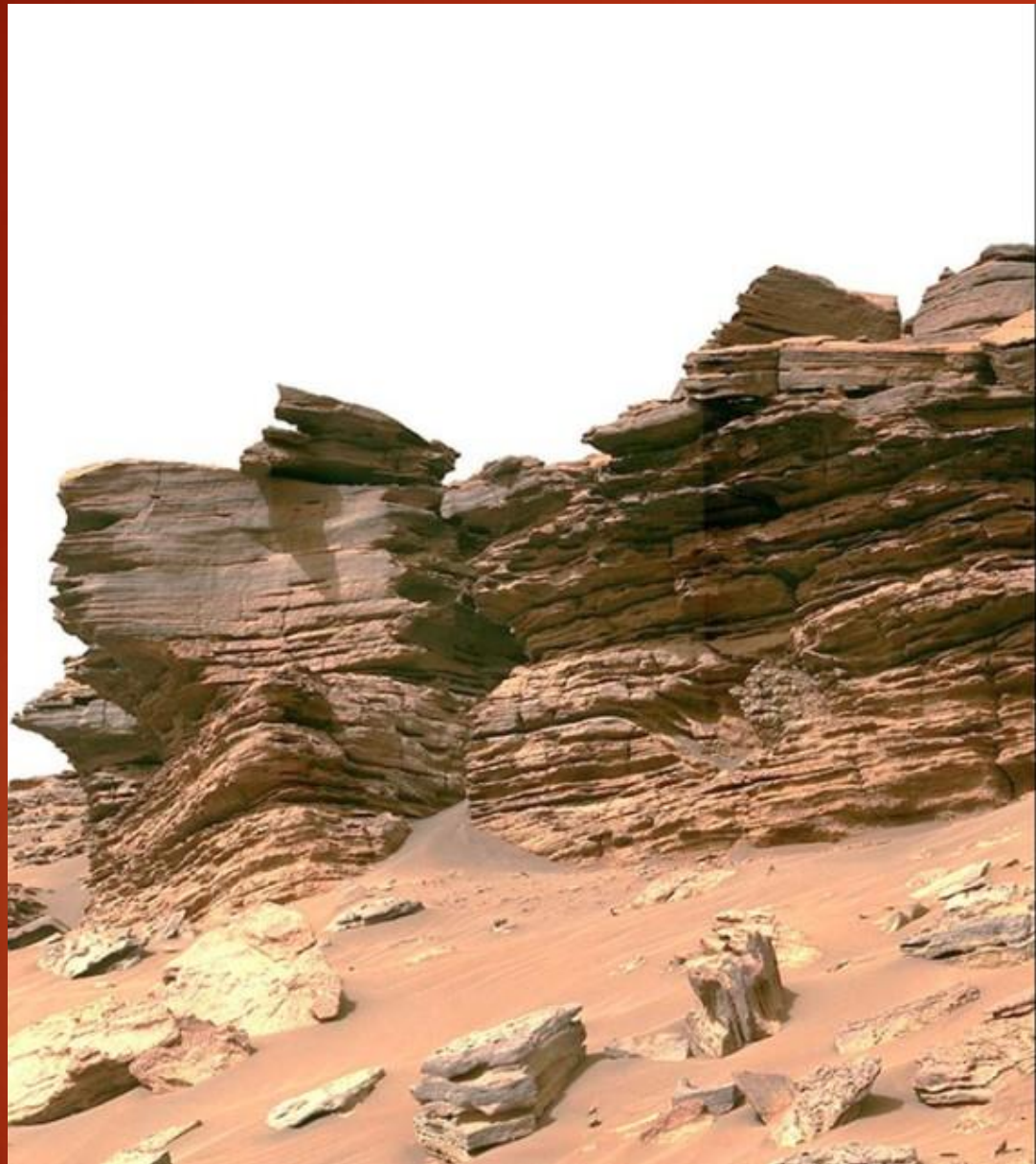
Meer afval op
Mars.....



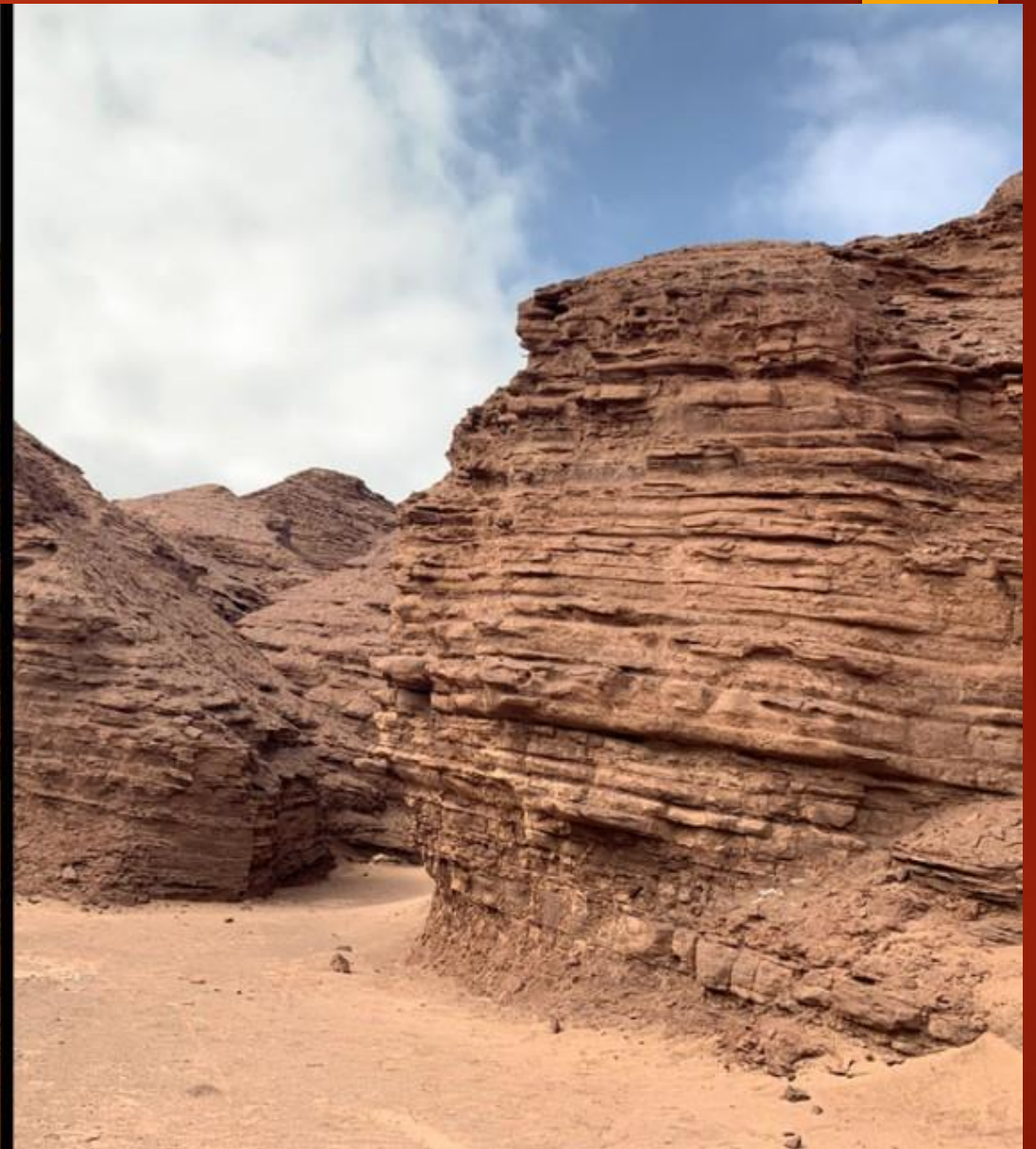
12 juni 2022

Fraaie
sedimentlagen





Jezero Crater



Red Stone Jurassic fossil delta

Atacama Desert Chili



Wadi Rum, Jordanië

(Alex Scholten)



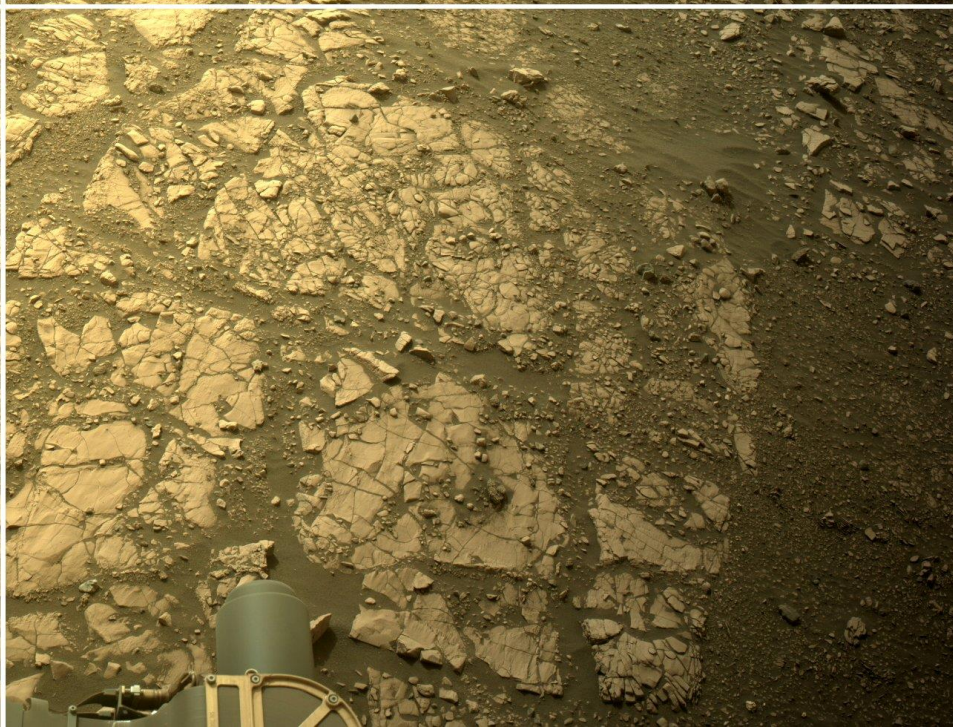
Jezero Crater, Mars

(Perseverance)

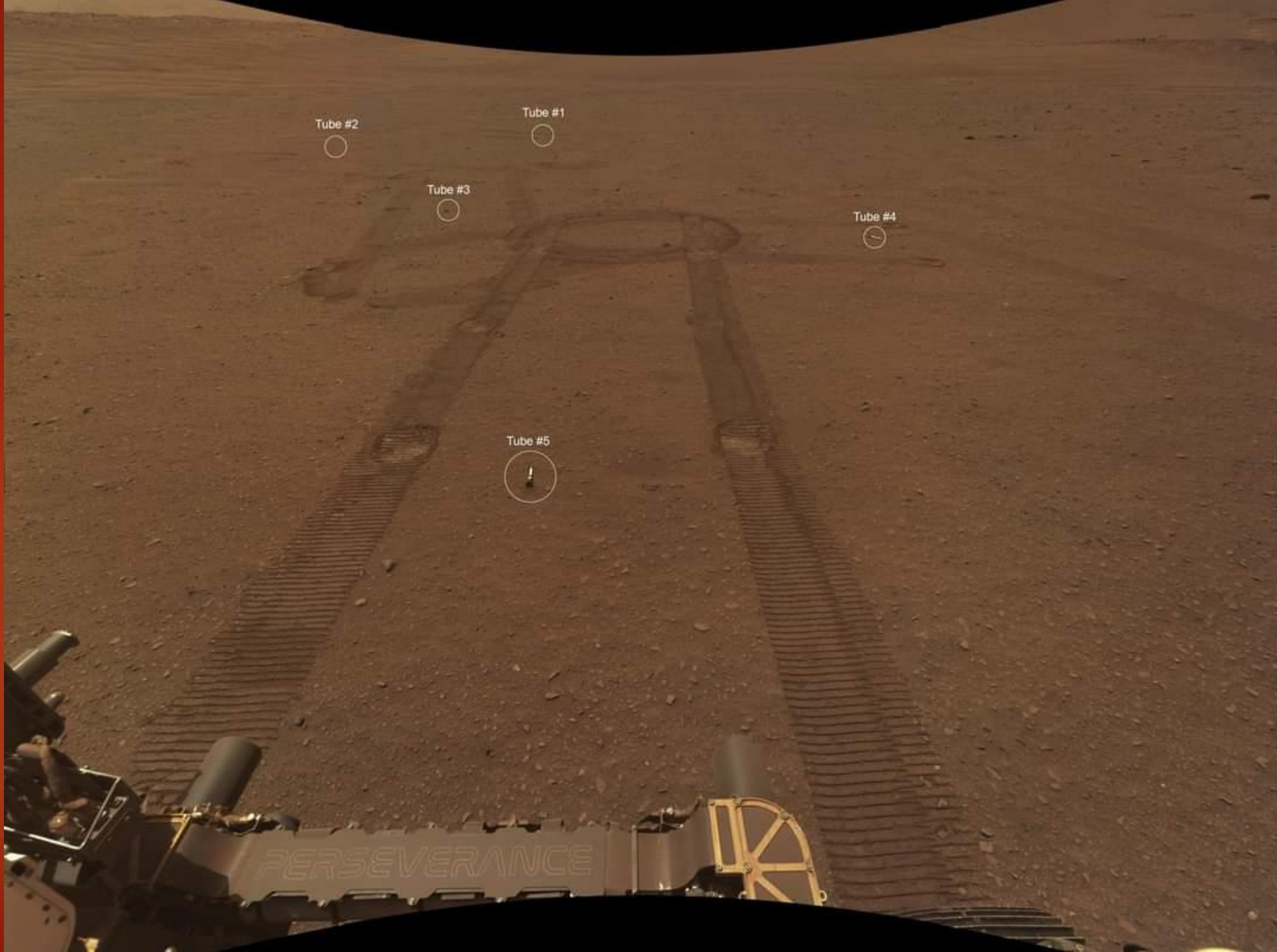


12 juni 2022

'Bacon Strip'







Tube #2

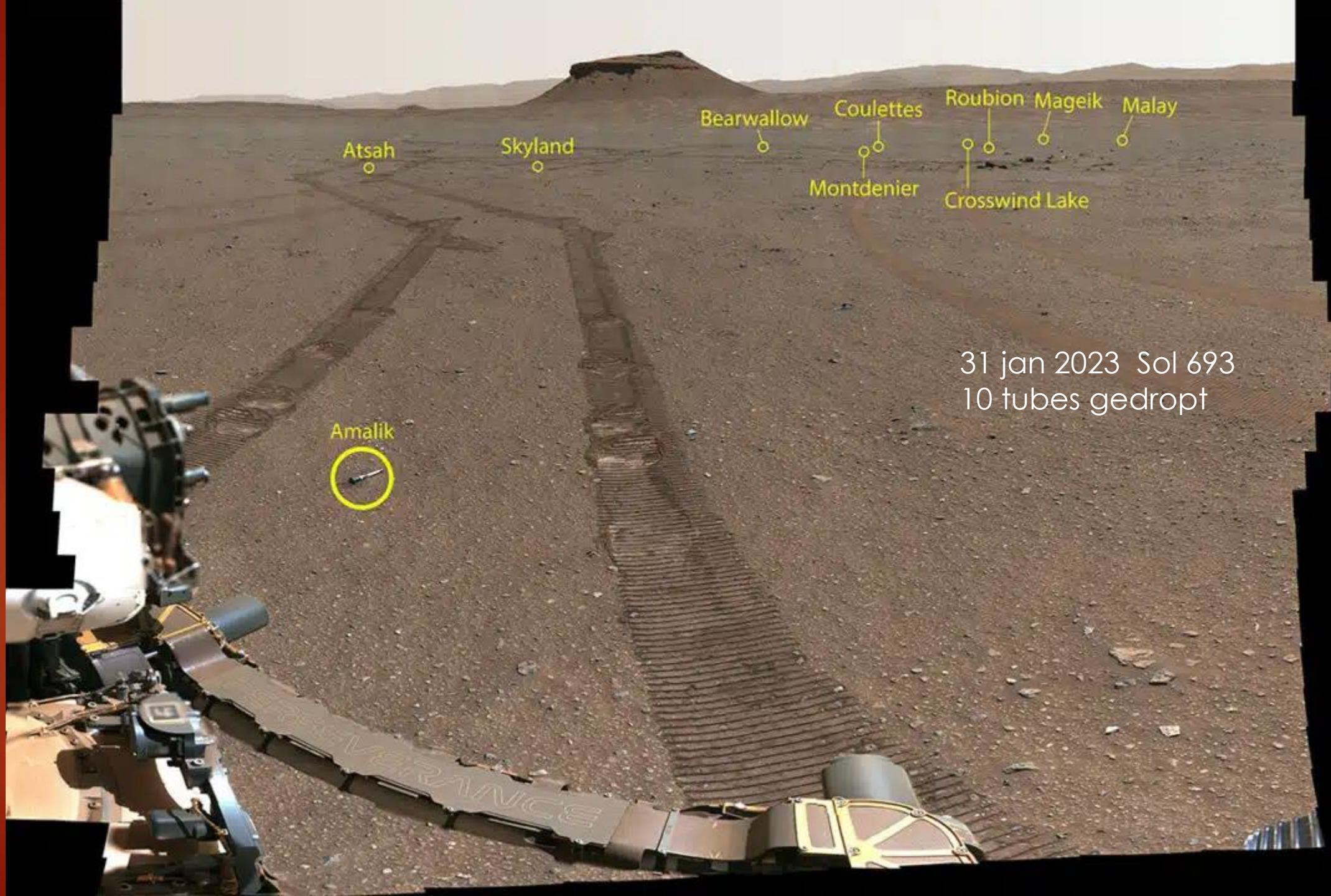
Tube #1

Tube #3

Tube #4

Tube #5

PERSEVERANCE



Atsah

Skyland

Bearwallow

Montdenier

Coulettes

Crosswind Lake

Roubion

Mageik

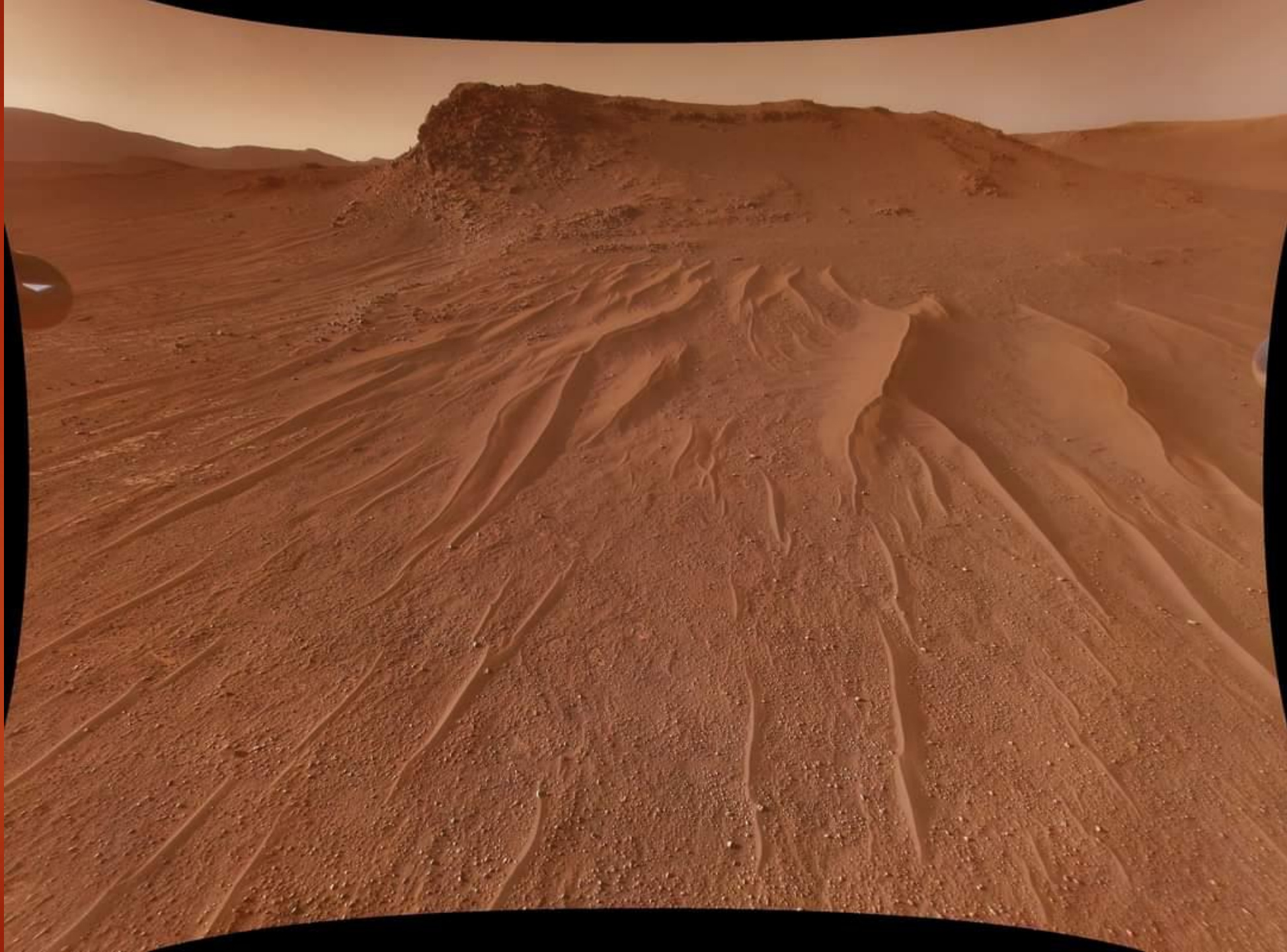
Malay

Amalik

31 jan 2023 Sol 693
10 tubes gedropt

18 mrt
2023



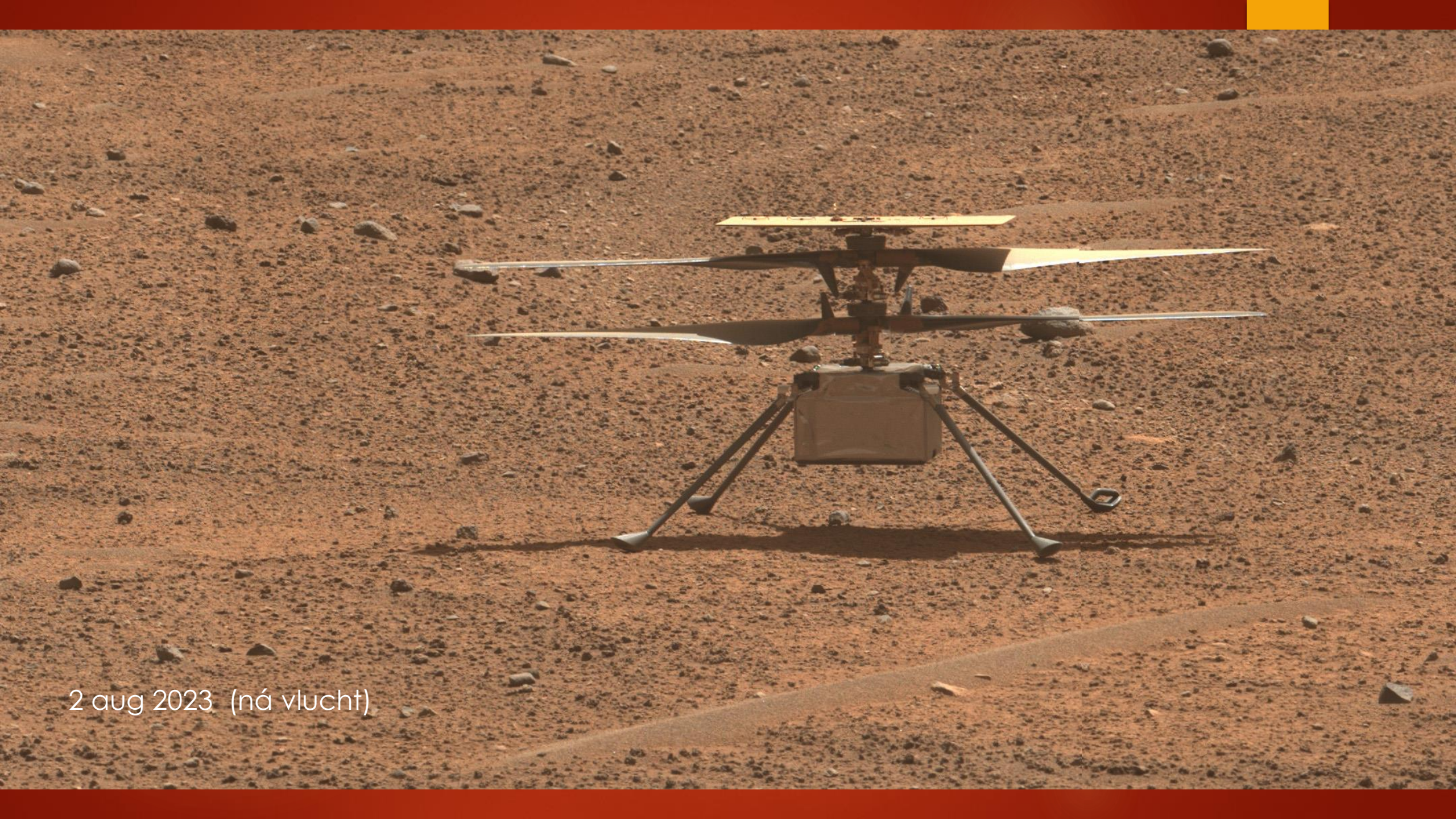


Ingenuity
22 feb 2023
Vlucht 45
Sol 714

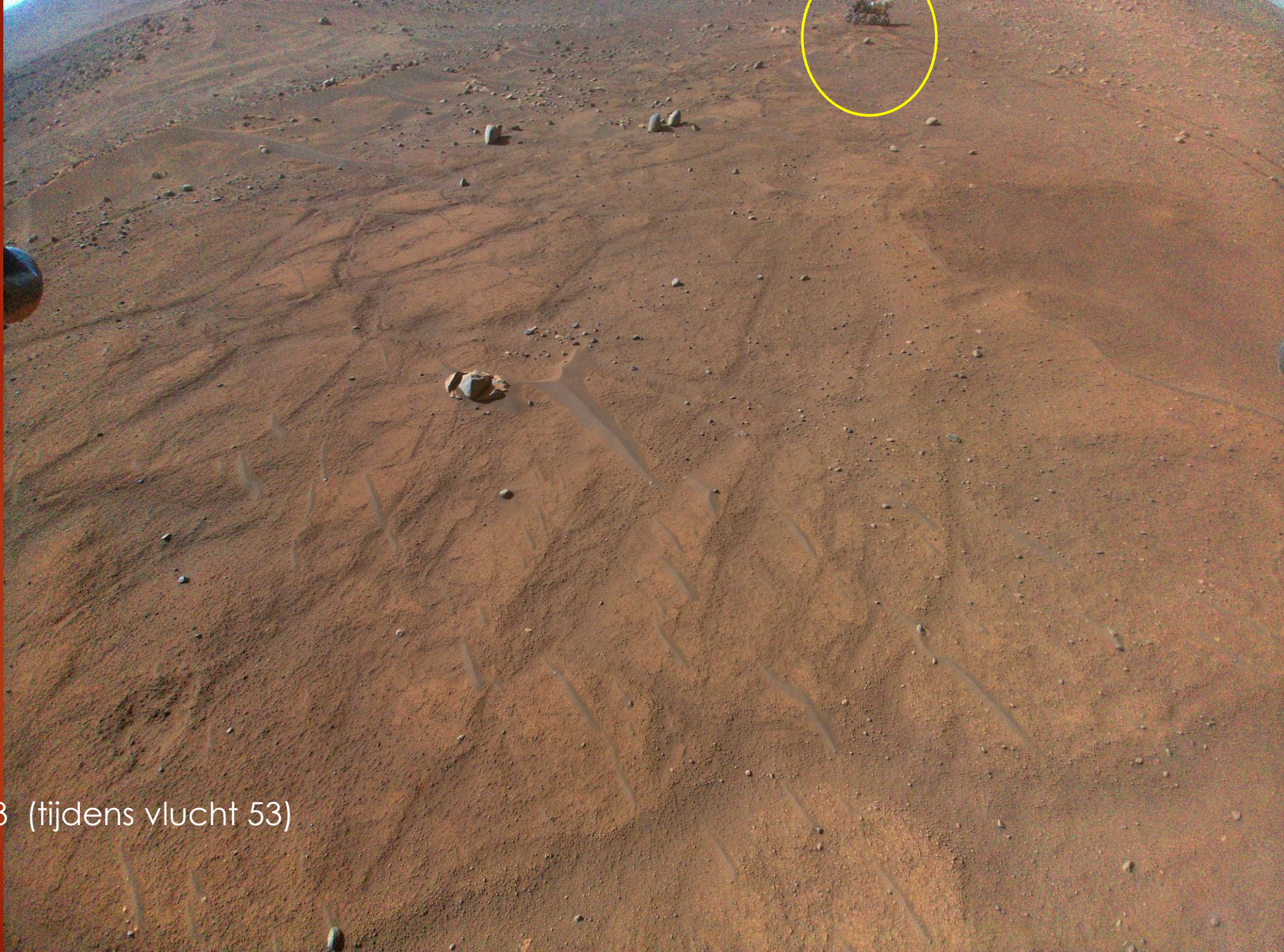


Ingenuity
16 apr 2023

(na 50^{ste} vlucht)
(op 75m afstand)

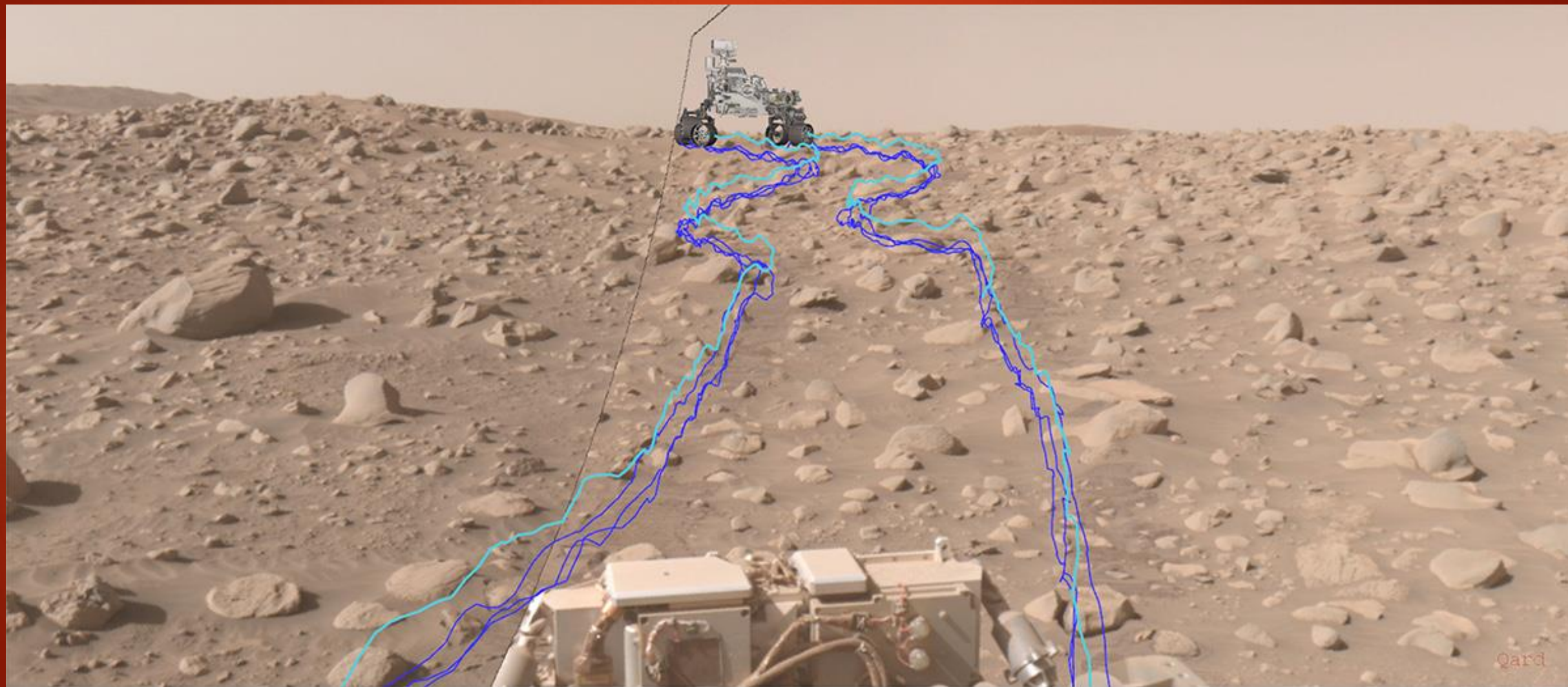


2 aug 2023 (ná vlucht)



7 aug 2023 (tijdens vlucht 53)

Auto-nav in 'rotsveld'







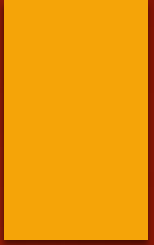
3 nov 2023



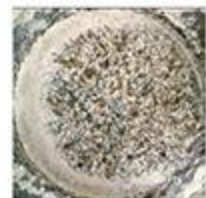
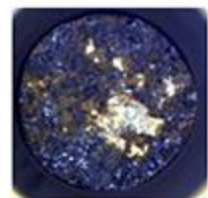
Perseverance 'geparkeerd'
tijdens zonne-conjunctie
half nov tot eind dec 2023



Sol 1000 =
12 dec 2023

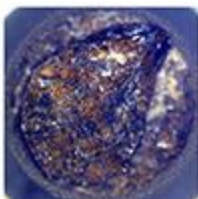


Crater Floor

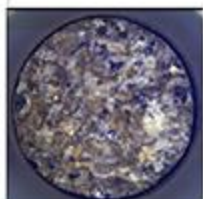


Montagnac

Salette

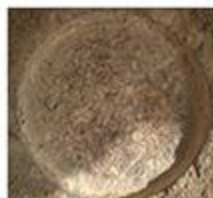
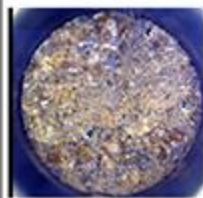


Hahonih



Robine

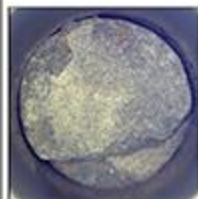
Delta Front



Swift Run



Hazeltop



Shuyak



Kukaklek

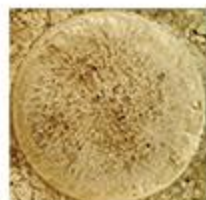
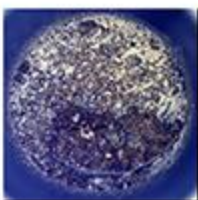


CORED
SAMPLE

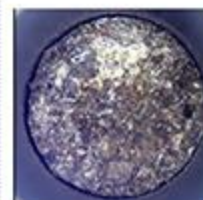


ABRASION
PATCH

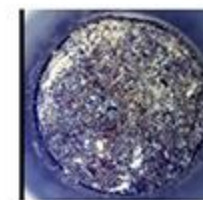
Sample Name



Melyn



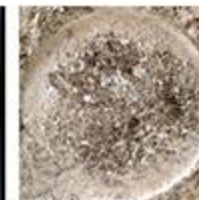
Otis Peak



Pilot Mountain



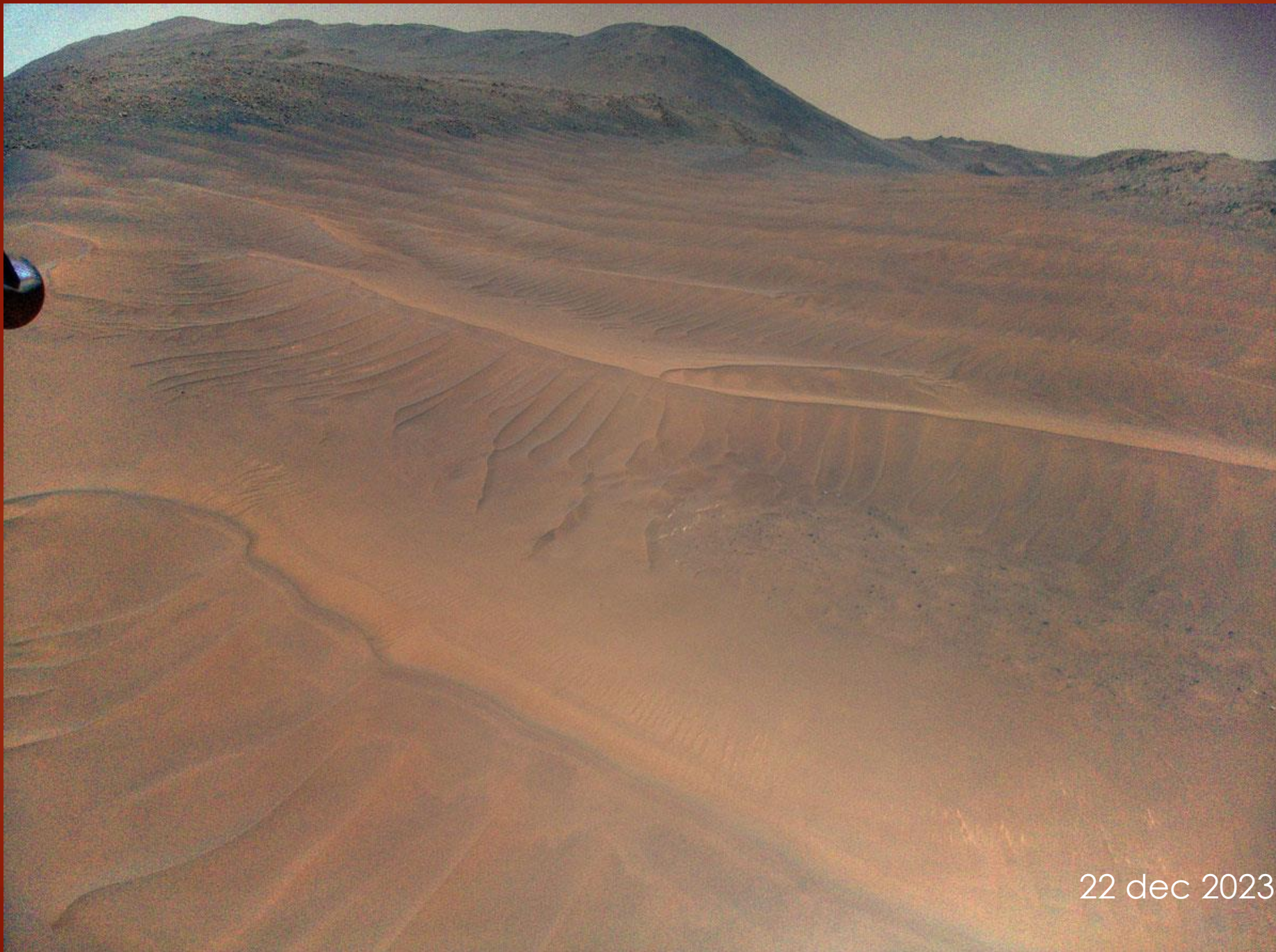
Pelican Point



Lefroy Bay

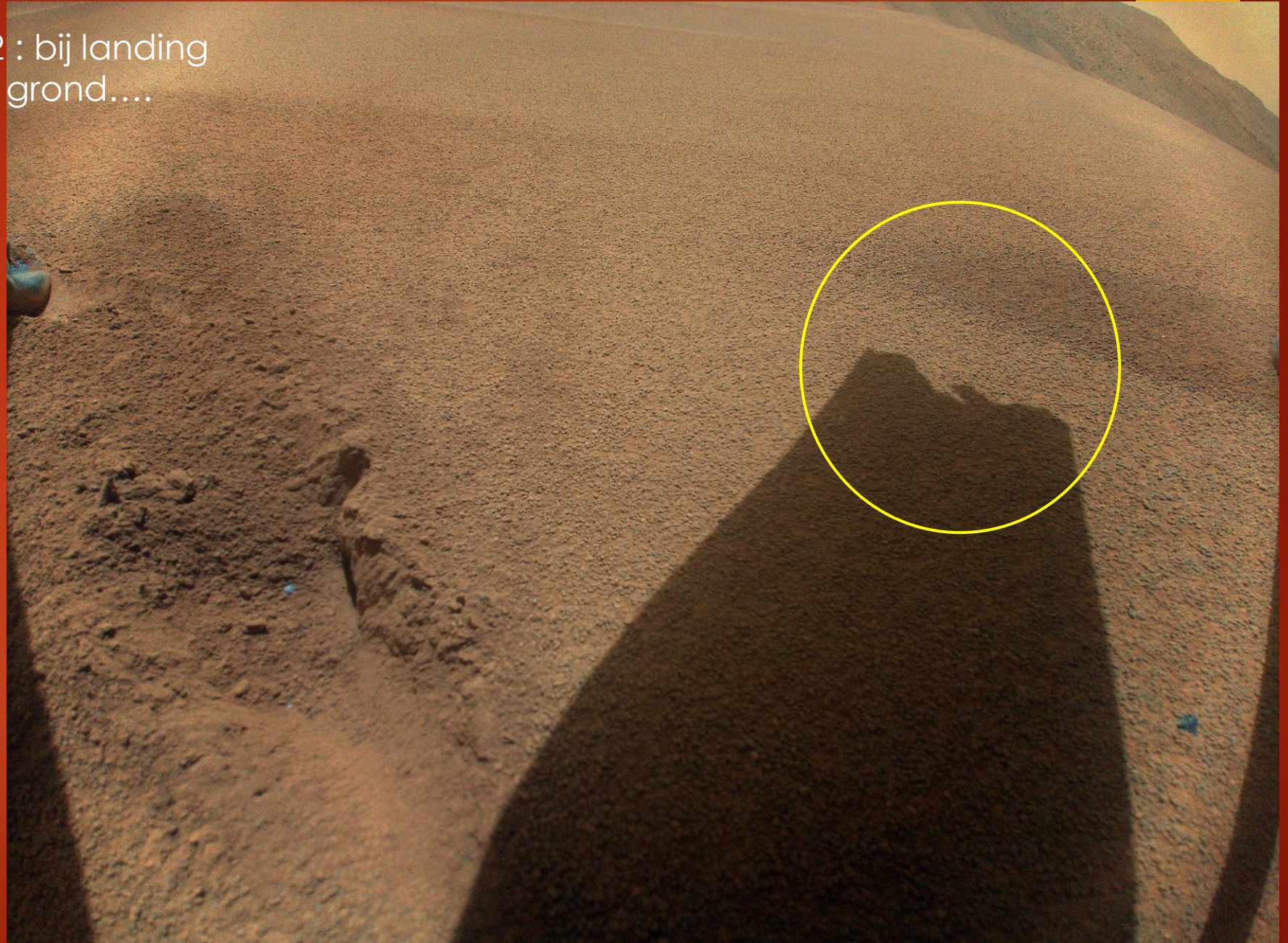
Upper Fan

Margin



22 dec 2023 (tijdens vlucht 70)

18 jan 2024: vlucht 72 : bij landing
raken rotorbladen de grond....

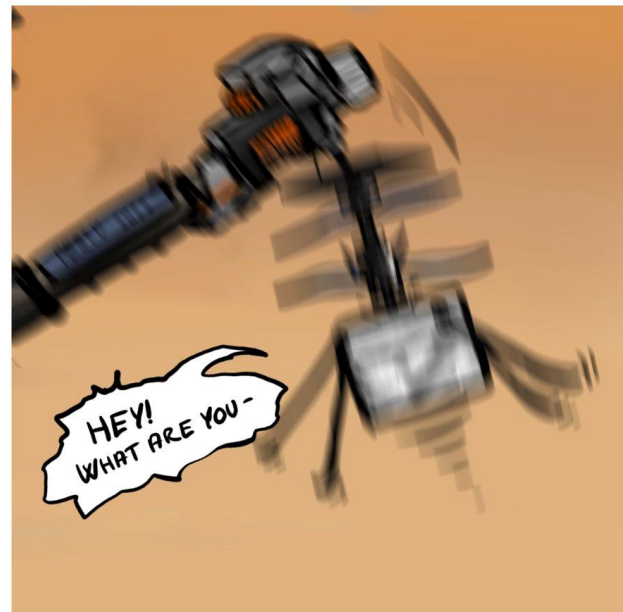
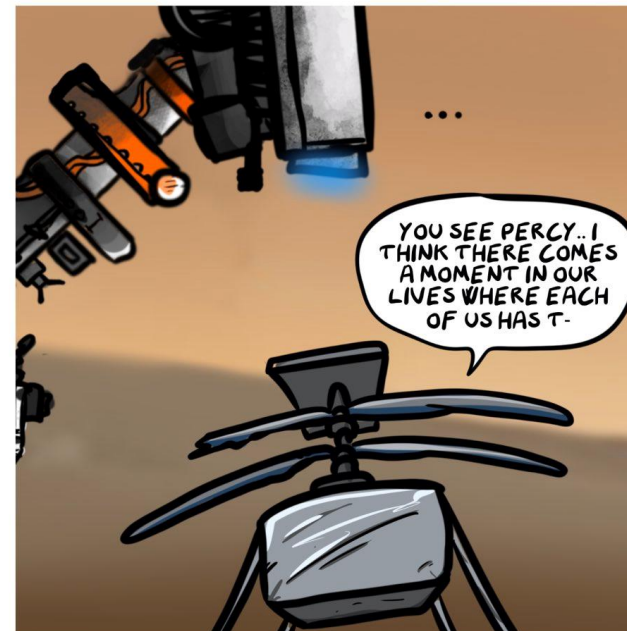
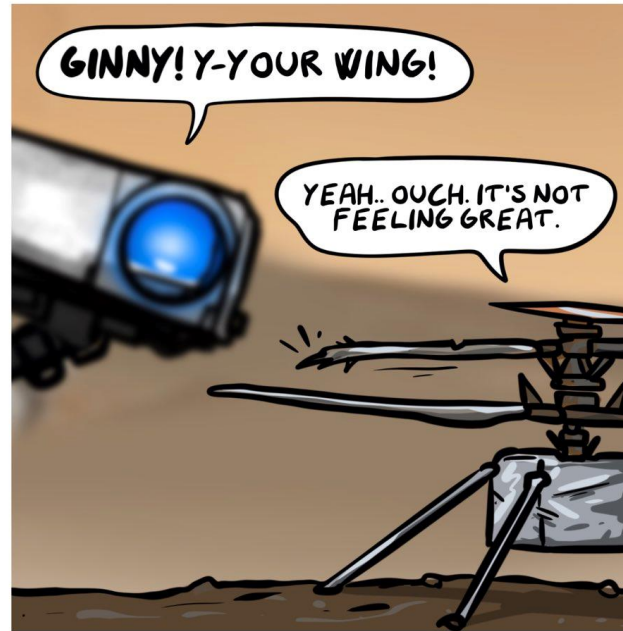


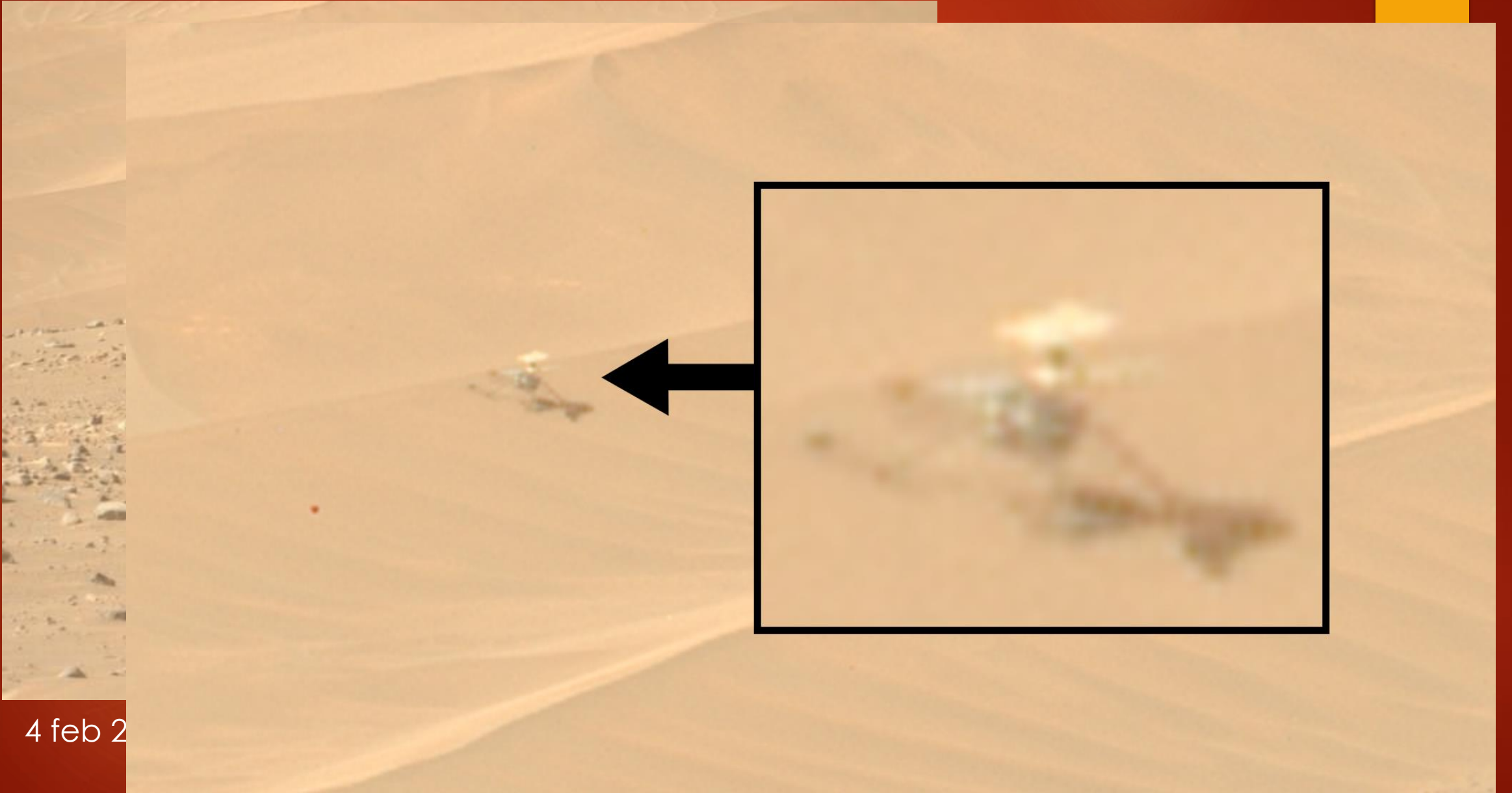
Na 72 vluchten
einde vlucht-
missies Ingenuity !!!

128.8 minuten
vluchttijd

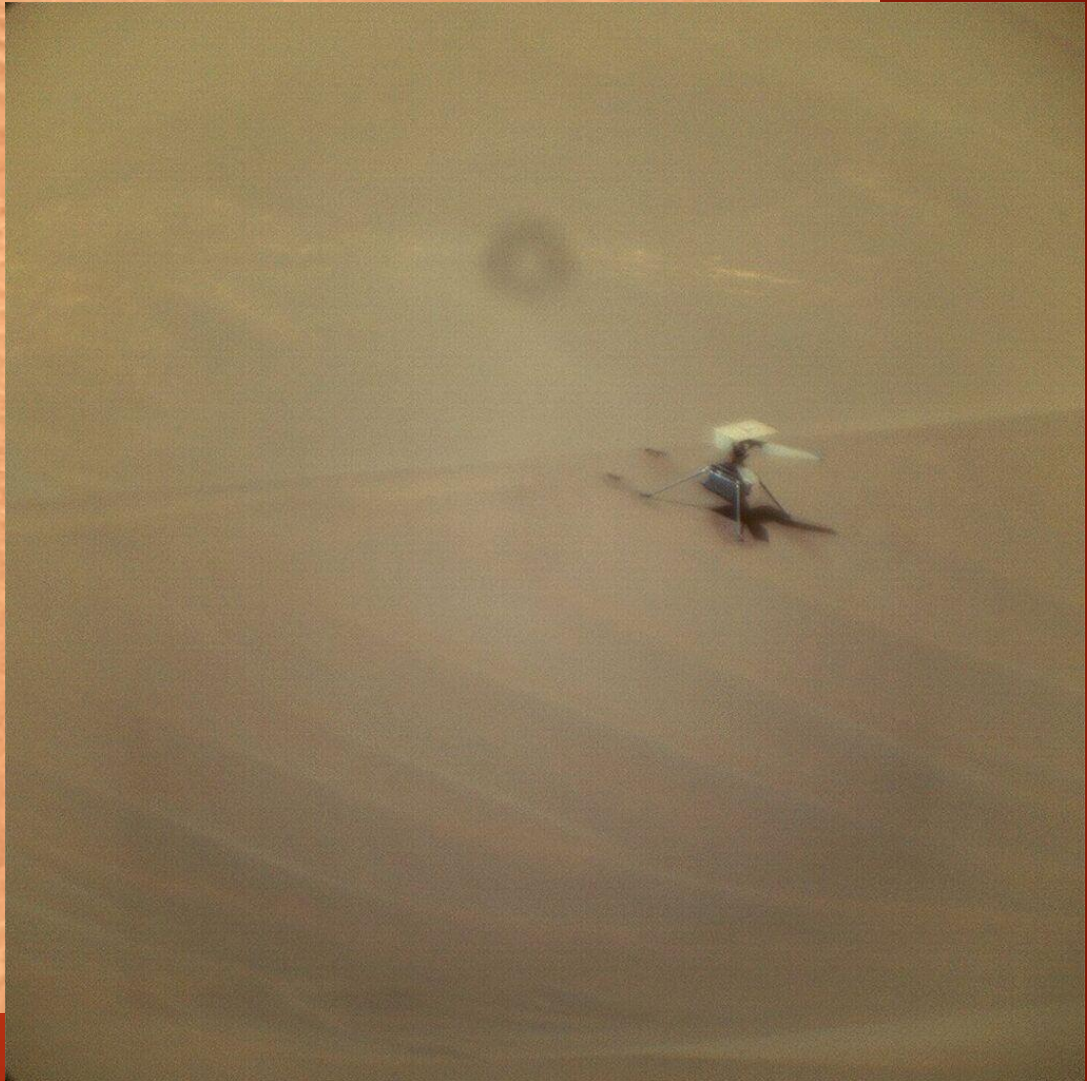
17.0 km afstand

max 24m hoogte



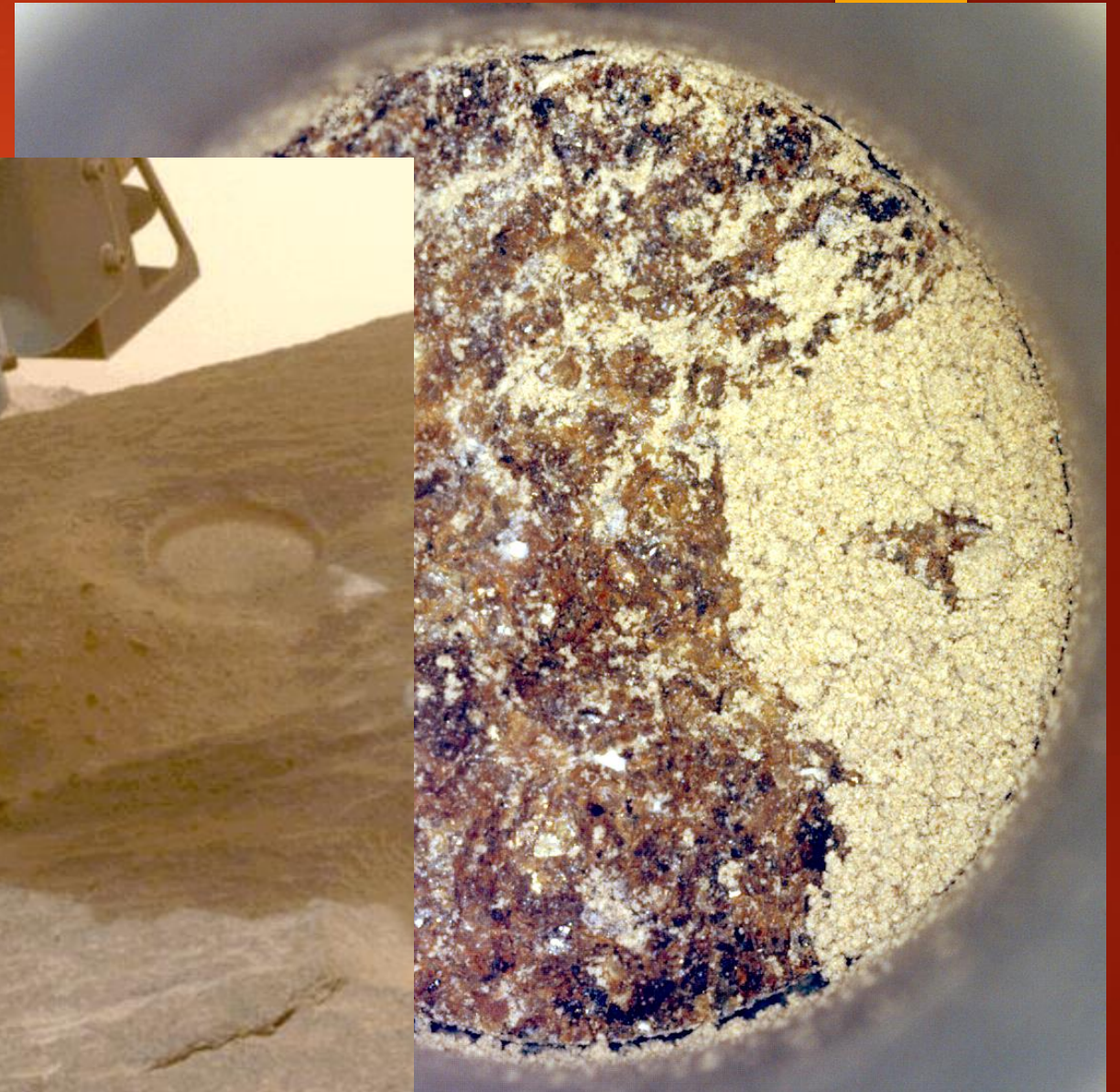
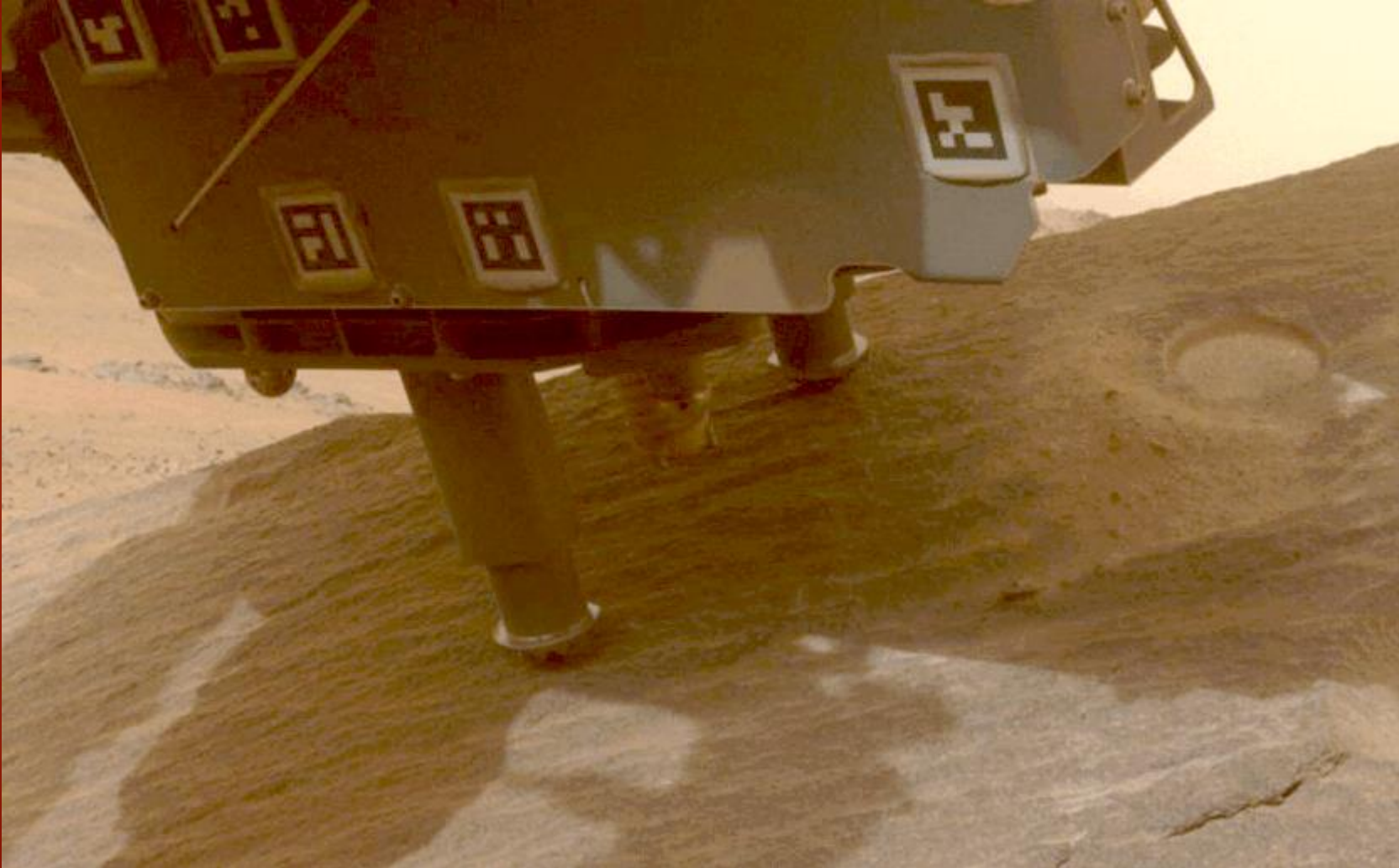


4 feb 2



Monster uit rots 'Bunsen Peak'

24^e sample; 21^e rots-monster





13 april 2024
Sol 1119

'Bright Angel'



27 mei 2024
Sol 1162

Vreemde erosie-
stenen met
mineraal-aders



10 juni 2024
Sol 1175



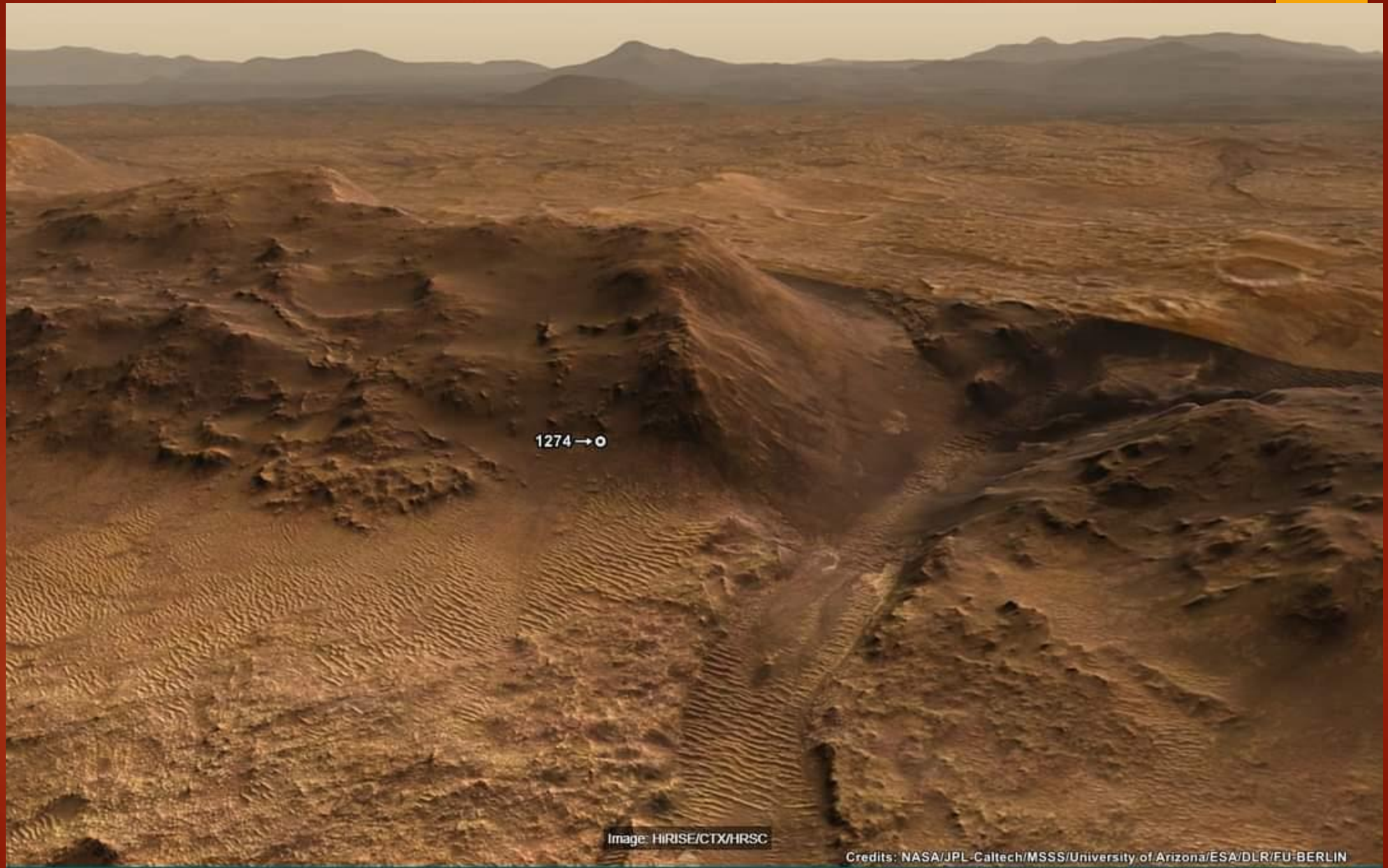


Olivine

Leopard Spot



22 nov 2024



1274 → ○

Image: HIRISE/CTX/HRSC

Credits: NASA/JPL-Caltech/MSSS/University of Arizona/ESA/DLR/FU-BERLIN



23 nov 2024 'Rio Chiquito' (sol 1337)

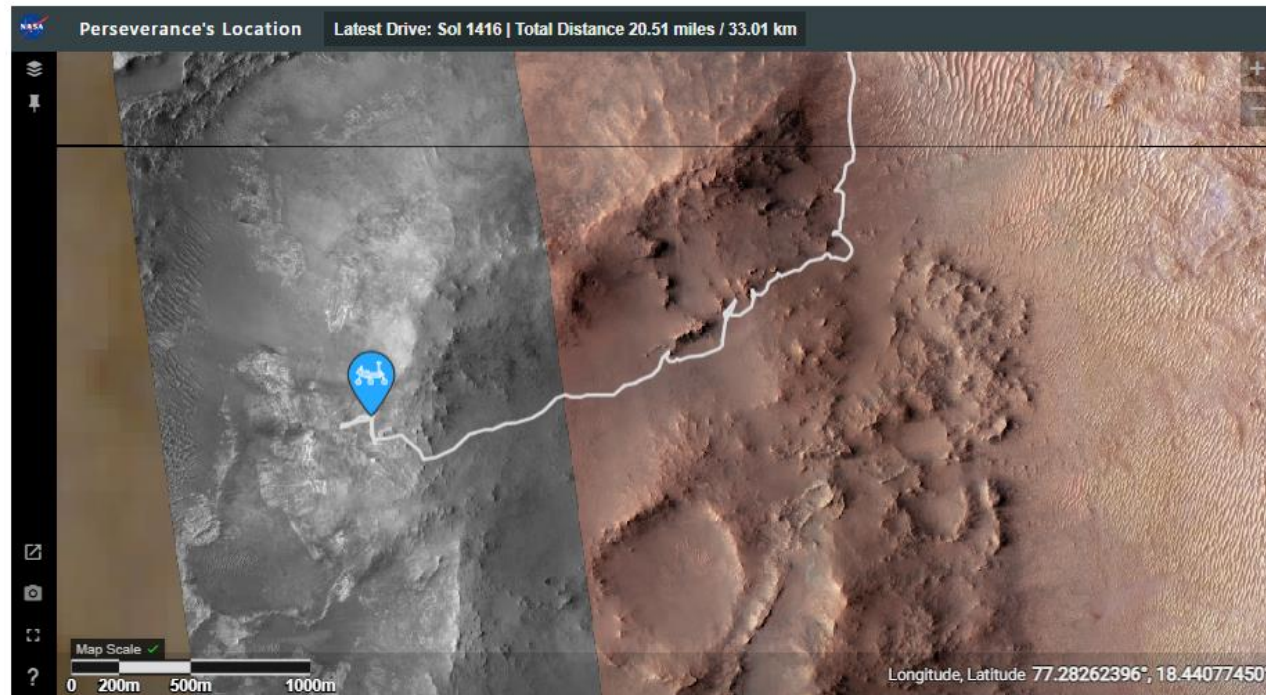
Mars 2020: Perseverance Rover

Interactive Map

About this Map

Where is Perseverance?

NASA's Perseverance rover landed in Jezero Crater, an area with an ancient delta, on Feb. 18, 2021. Scroll and pan around this map to see the rover's latest location and traverse path, as it seeks signs of ancient life and collects samples of Mars rock and regolith (broken rock and dust) for potential future return to Earth.





Perseverance :

14 feb 2025 =
sol 1416

- Afstand : 33.0 km
- > 700.000 foto's
- 24 (van 38 tubes)
 - 21 cores + 2x regoliet
 - + 1x atmosfeer
 - (3 van 5 'witness-tubes')

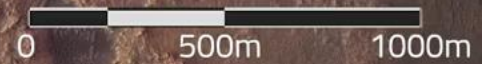


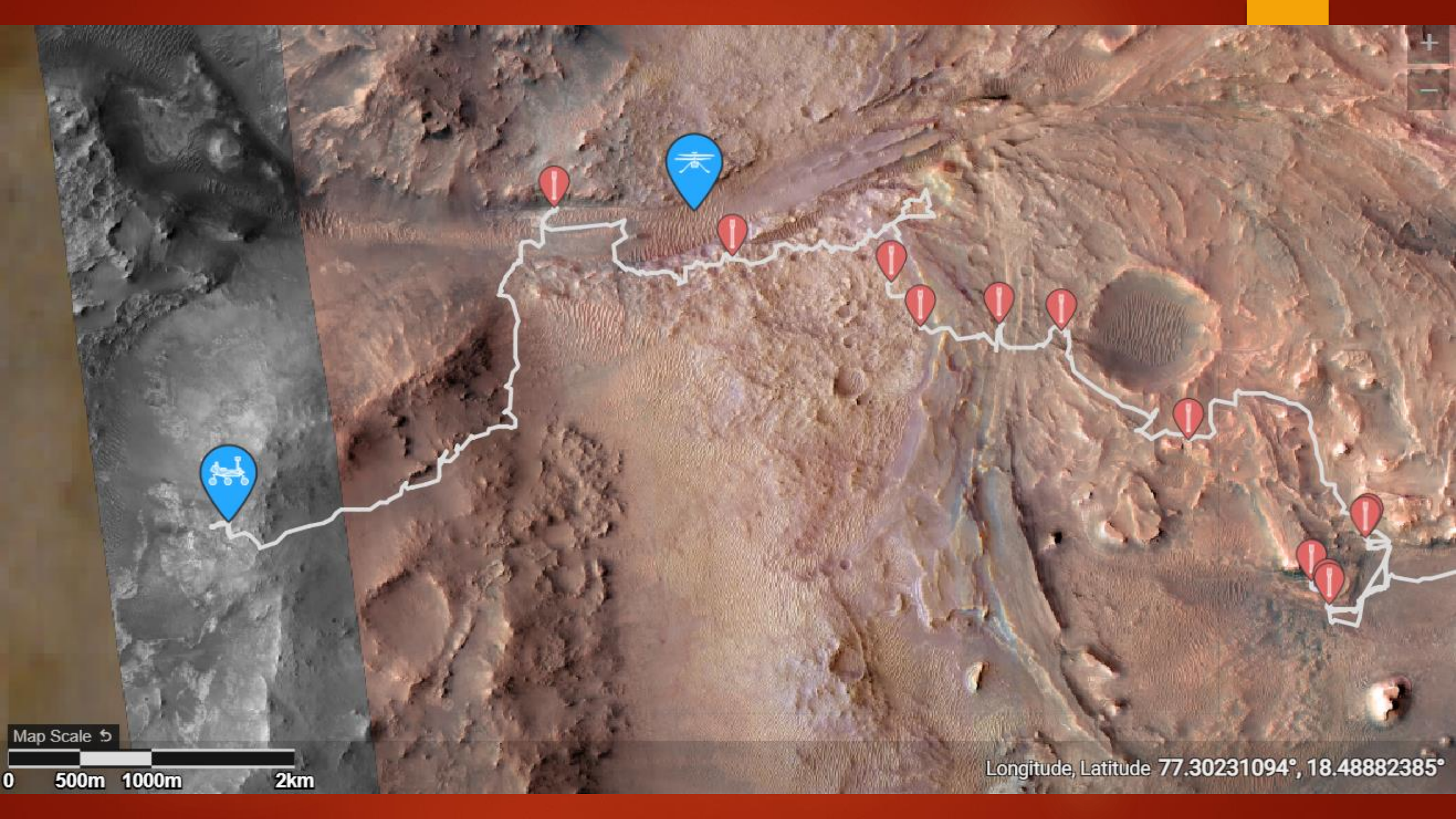
Distance: 0.00 miles

Sol: 0

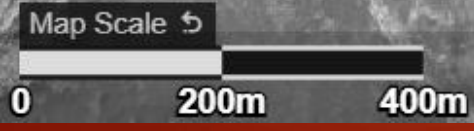
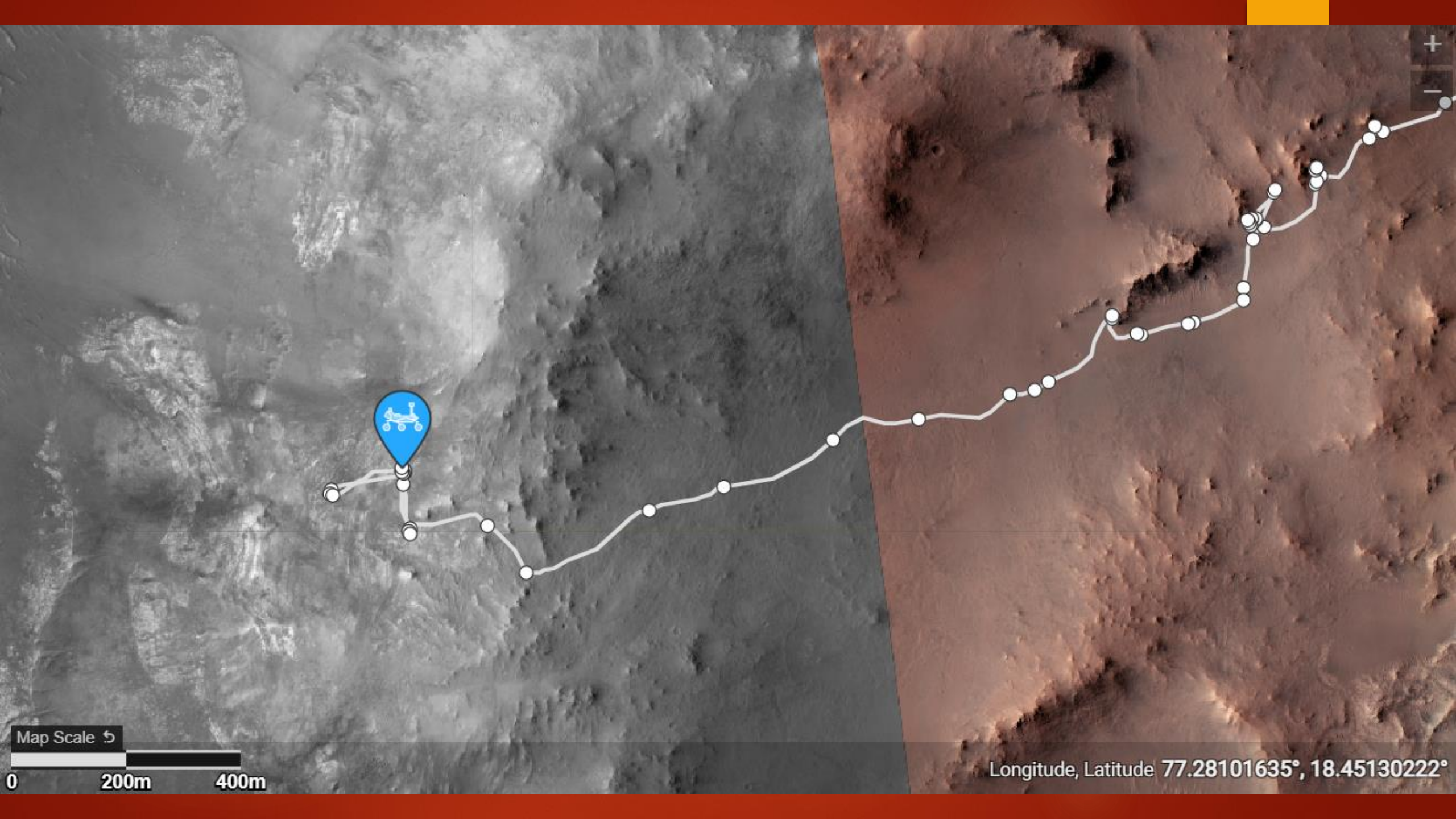
Samples: 0

● *Sample location*

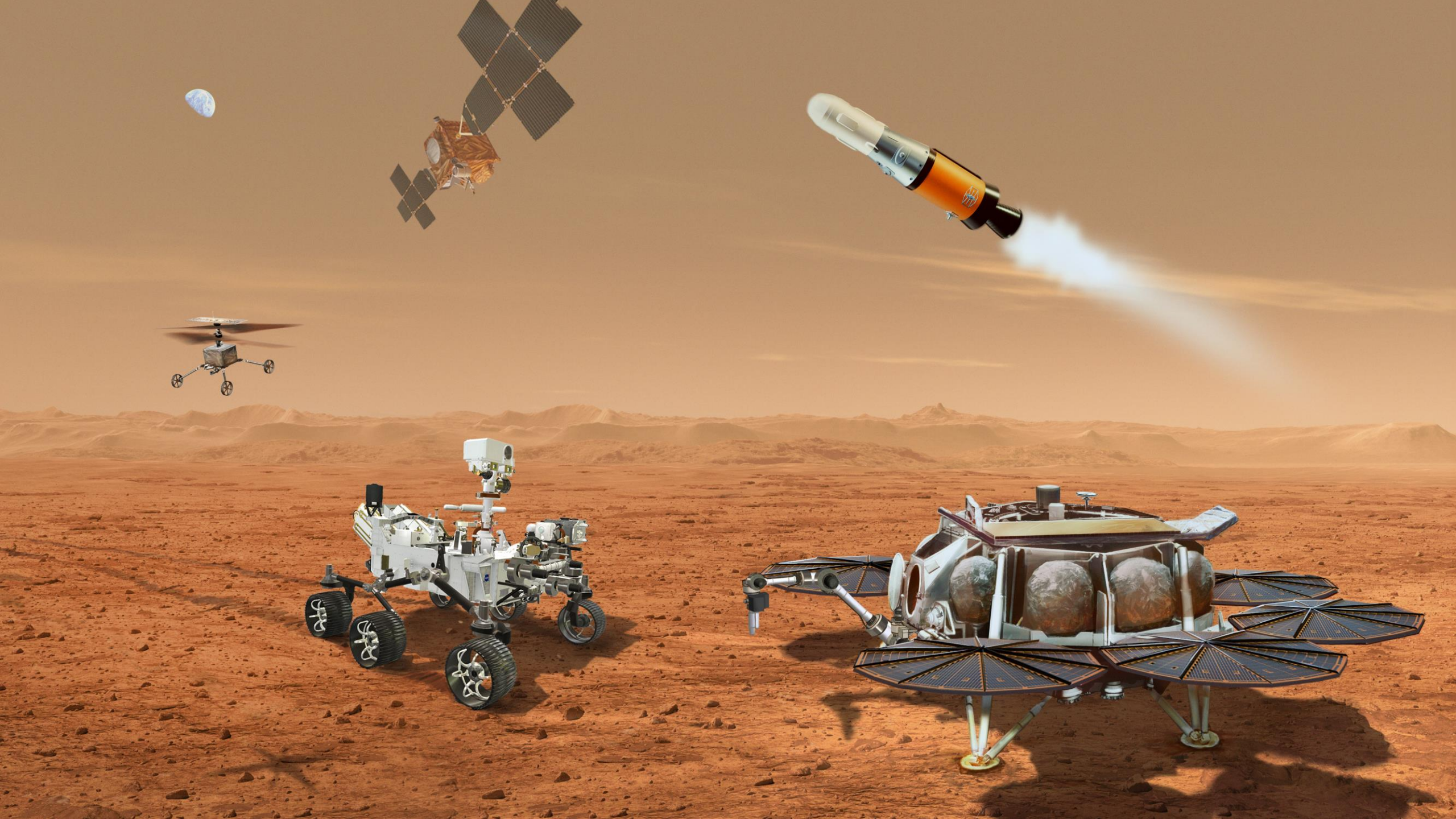




Longitude, Latitude 77.30231094°, 18.48882385°



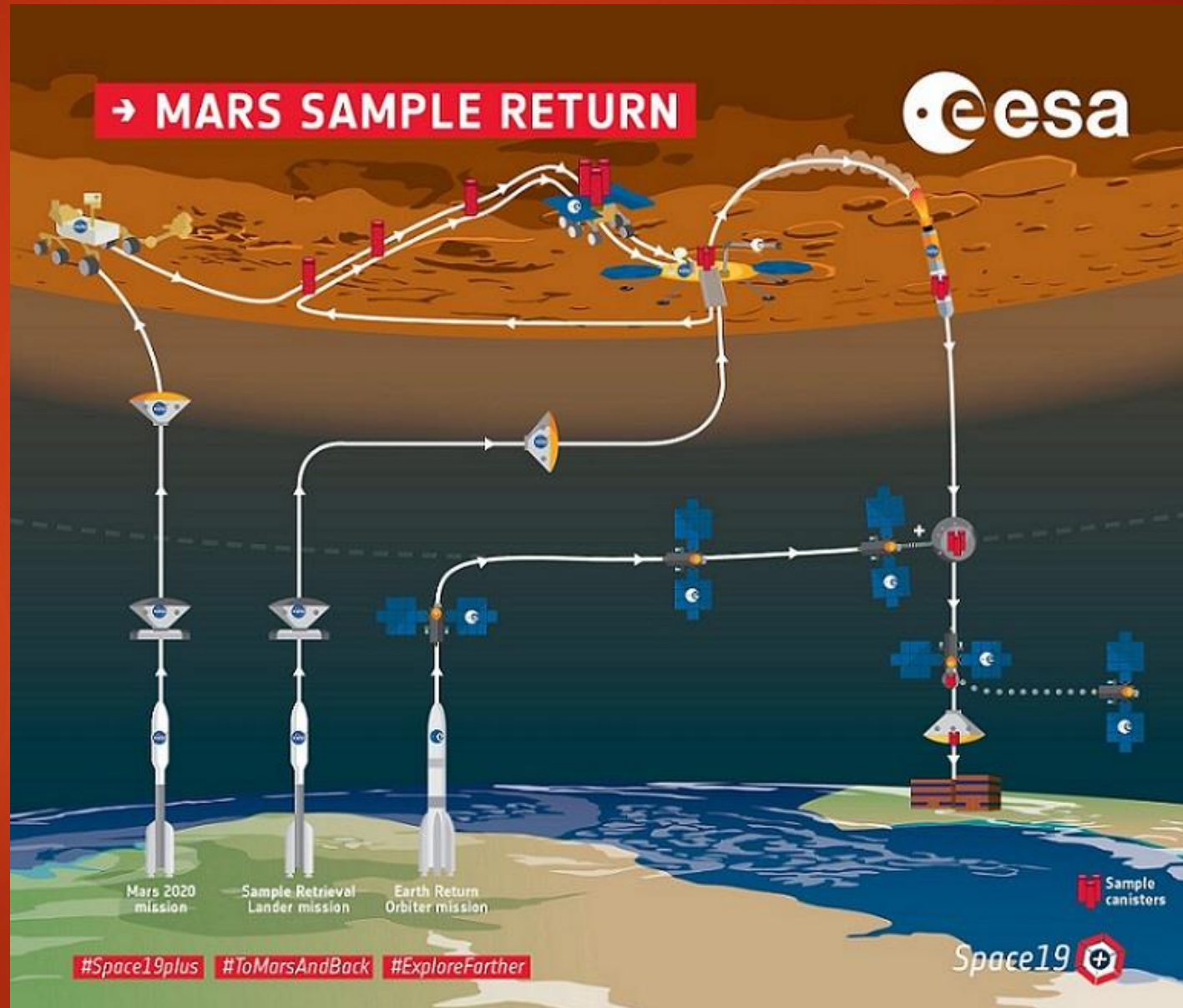
Longitude, Latitude 77.28101635°, 18.45130222°



PERSEVERANCE: 1e fase Sample Return

Containers worden achtergelaten op gedocumenteerde en herkenbare plekken

Toekomstige samenwerking met ESA voor verzamelen (2028/2029?) en terugbrengen naar Aarde (2031?)





Mars Guy

@MarsGuy · 35,8K abonnees · 167 video's

Mars Guy is Arizona State University associate research professor Dr. Steve Ruff,

[instagram.com/marsguyofficial](https://www.instagram.com/marsguyofficial)



Geabonneerd ▾

Home

Video's

Playlists



Video's



Alles afspelen

<https://www.youtube.com/c/MarsGuy>

CASTLE MADE
OF SAND

MARS GUY #167

4:43

NOW
MORE BACON?

MARS GUY #166

THEN
5:25

TREASURE
ISLAND !

MARS GUY #165

5:22

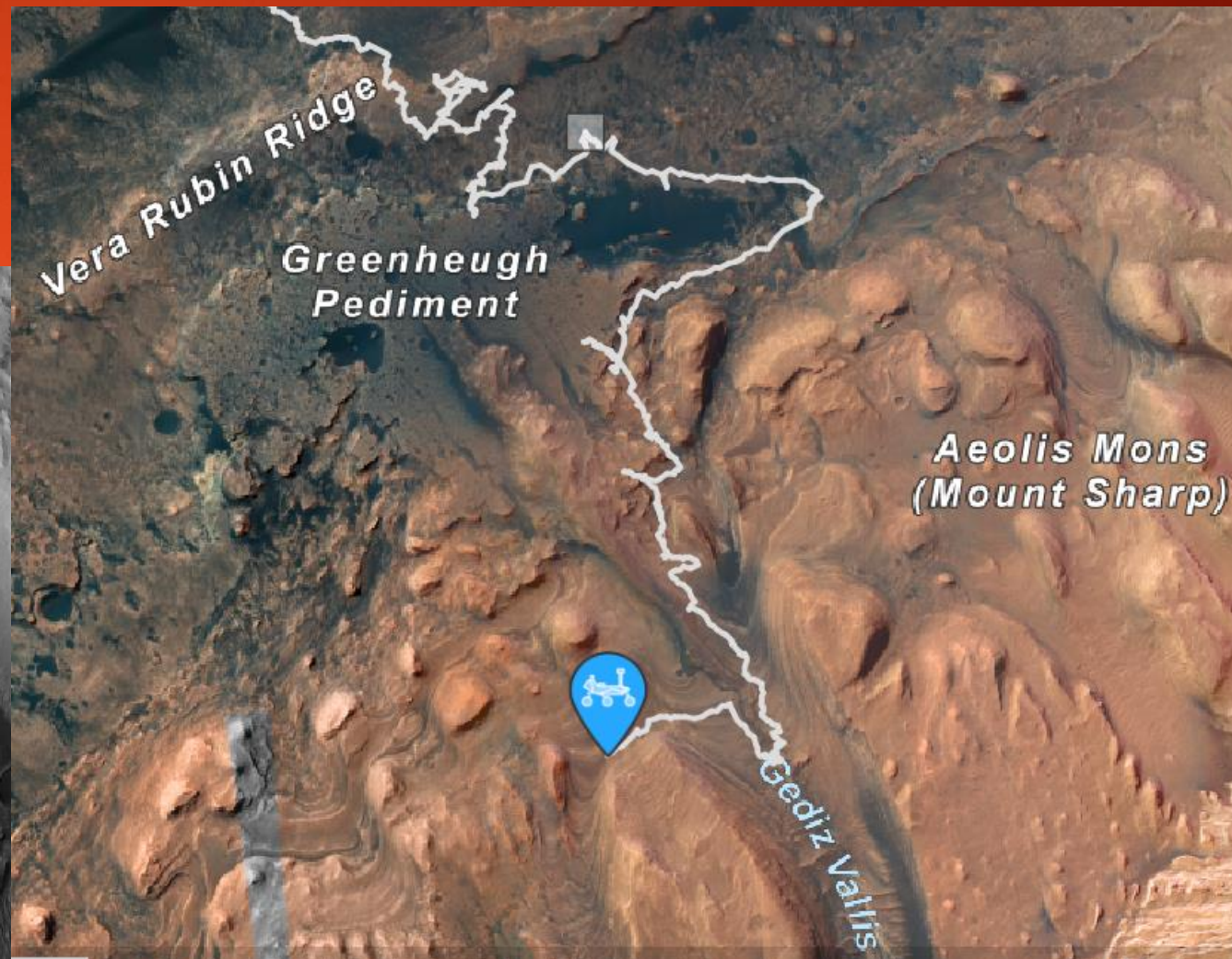
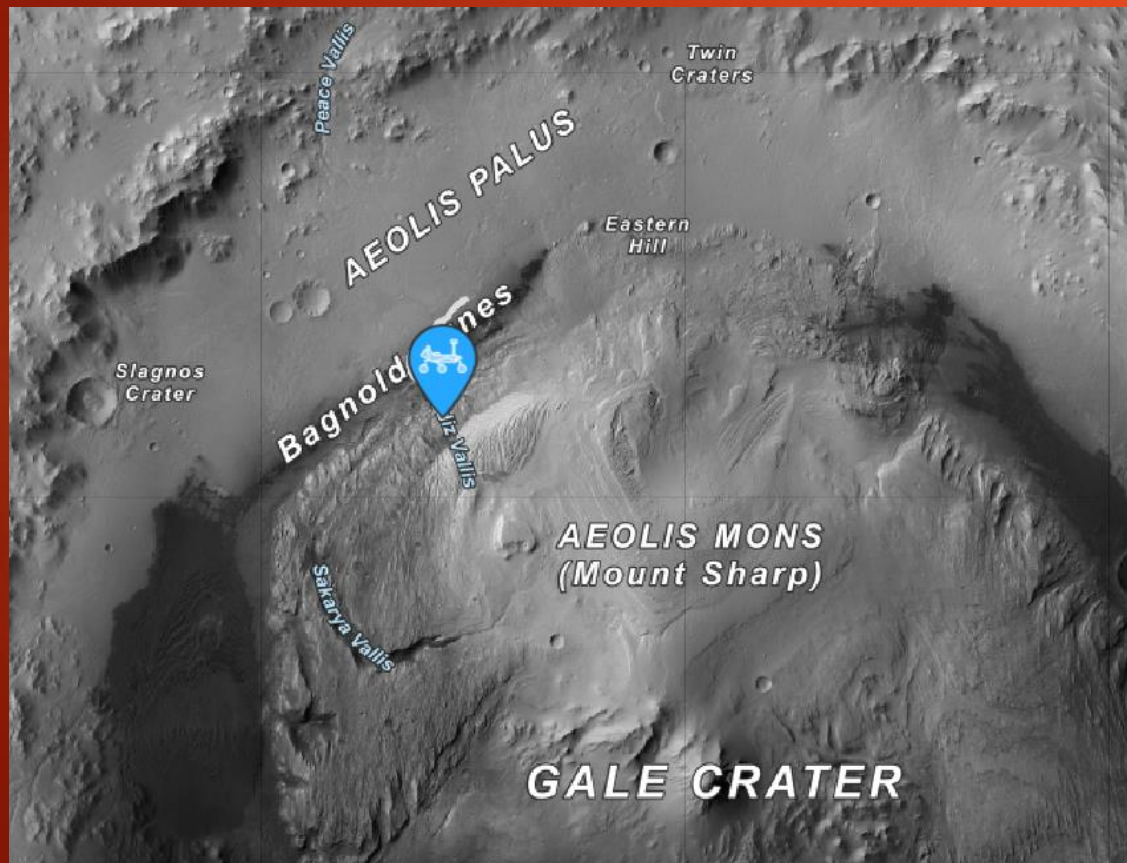
MA

Curiosity :

Sinds 6 aug 2012

14 feb 2025 = sol 4450

- Afstand : 33.75 km
- 630.000 foto's



***Bedankt voor uw
aandacht***



Illustration