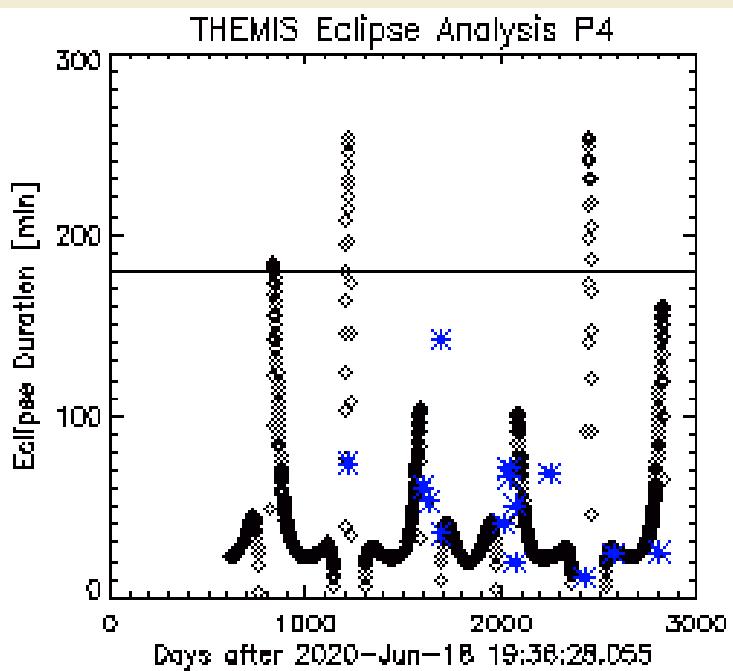


THEMIS Orbits 07/2022-03/2028

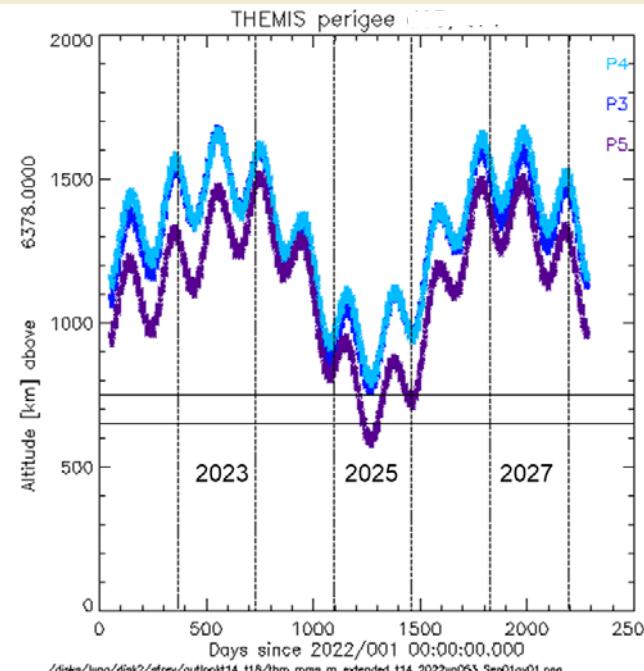


Data at SPDF are through 2028/118, updated 05/2021, next 05/2022

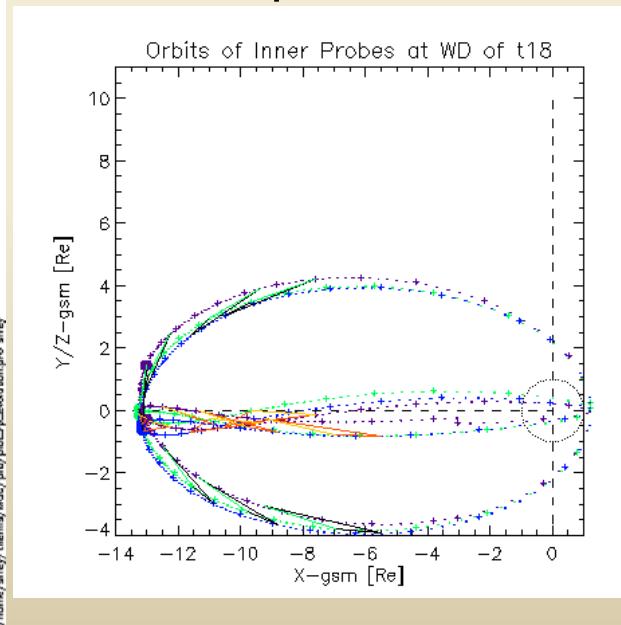
Shadows reach
253 to 258 min
on PD,PE,PA
in Oct. 2023,
Mar. 2027
Shown: PE

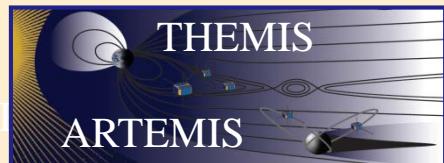


Perigee altitudes at minimum in 2025
PD, PE at 750 km,
PA at 600 km
Shown:
rp above 6378 km



Offset in Local Time within 0.5h
Tail centers into winter
09/2022 , 10/2023,
11/2024,
01/2026, 02/2027
Shown: Orbit in XY/XZ
GSM planes at tail center epoch in 02/2027

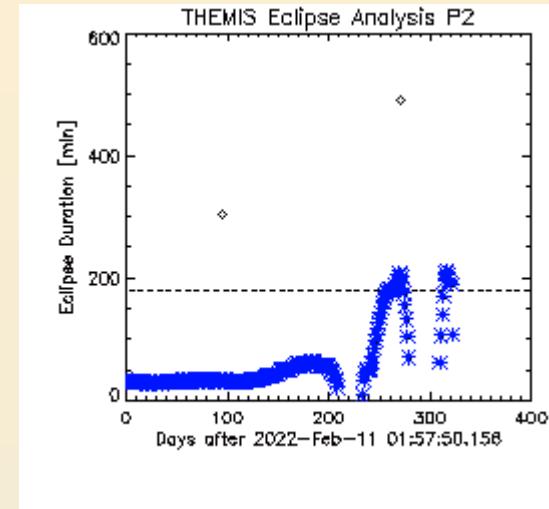




Fuel Allocation



THEMIS			
	THEMIS A	THEMIS D	THEMIS E
Current (2022/054)			
Remaining Fuel [kg]	2.152	3.544	3.435
Remaining Delta-V [m/s]	61.460	92.686	83.913
End of Mission			
Reserved Fuel [kg]	1.100	1.700	2.000
Unallocated Fuel Mass [kg]	1.052	1.844	1.435
Estimated Maintenance [kg/year]			
Spin Control*	0.001	0.001	0.001
Collision Avoidance^	0.005	0.005	0.005
Years to End of Mission	>10	>10	>10



ARTEMIS

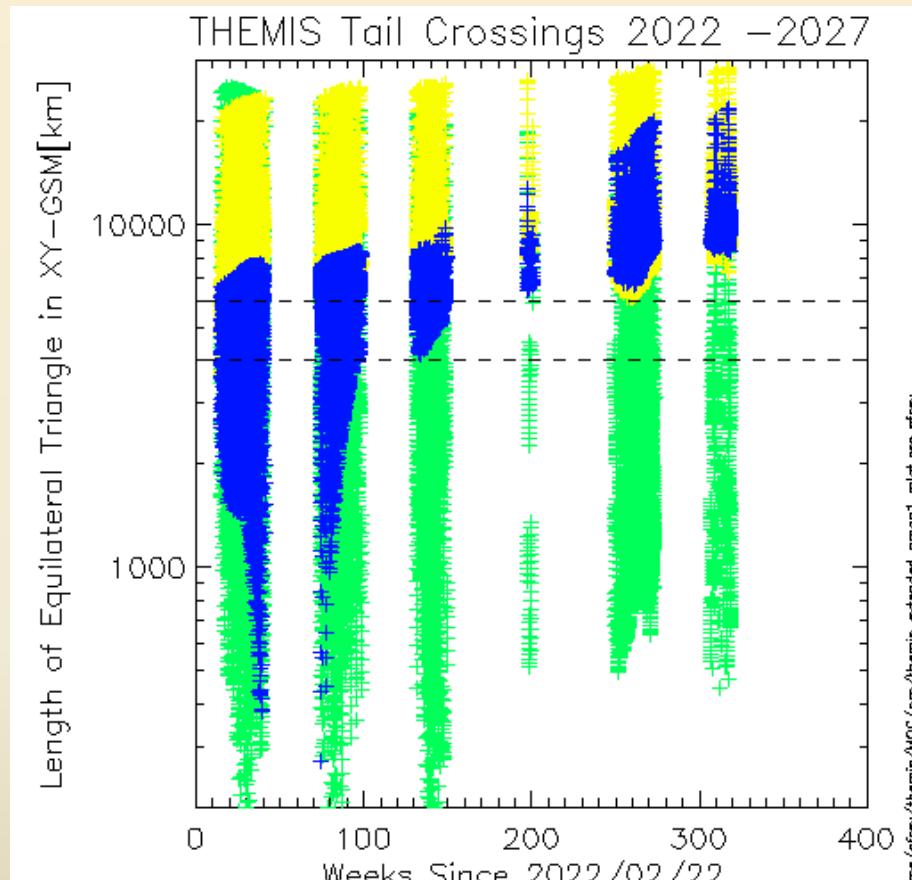
	P1	P2
Current (2022/054)		
Remaining Fuel [kg]	4.794	2.991
Remaining Delta-V [m/s]	91.719	73.970
End of Mission		
Reserved Fuel [kg]	0.523	0.404
Unallocated Fuel Mass [kg]	4.271	2.587
Estimated Maintenance [kg/year]		
Earth Shadow Avoidance and Lunar Altitude Maintenance*	0.020	0.020
Attitude Control^	0.010	0.010
Years to End of Mission	>10	>10

*A shadow maintenance maneuver on both spacecraft may be needed in the late summer 2022 to adjust their passage through the Earth's shadow in November 2022.

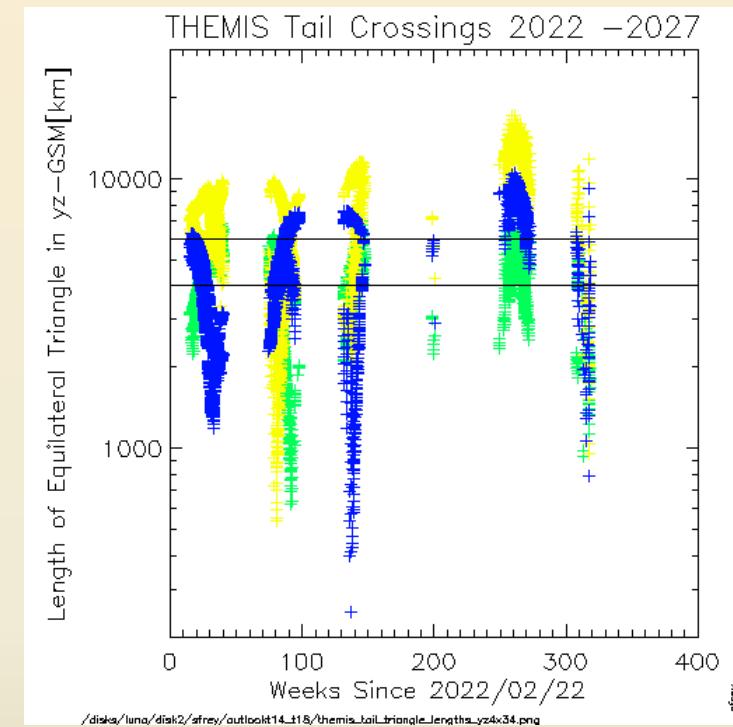
Fuel analysis provided by D. Cosgrove



Graphic presentation of instances where the triangular probe formation is nearly isosceles in the GSM xy plane.
Colors represent the pairs **PDPE**, **PDPA**, **PEPA**.



Duration spent within 4000 and 6000km per probe pair in hours
500 , 100, 600



Separation in GSM-YZ plane at instances of **PDPE** in **GSM-xy** plane

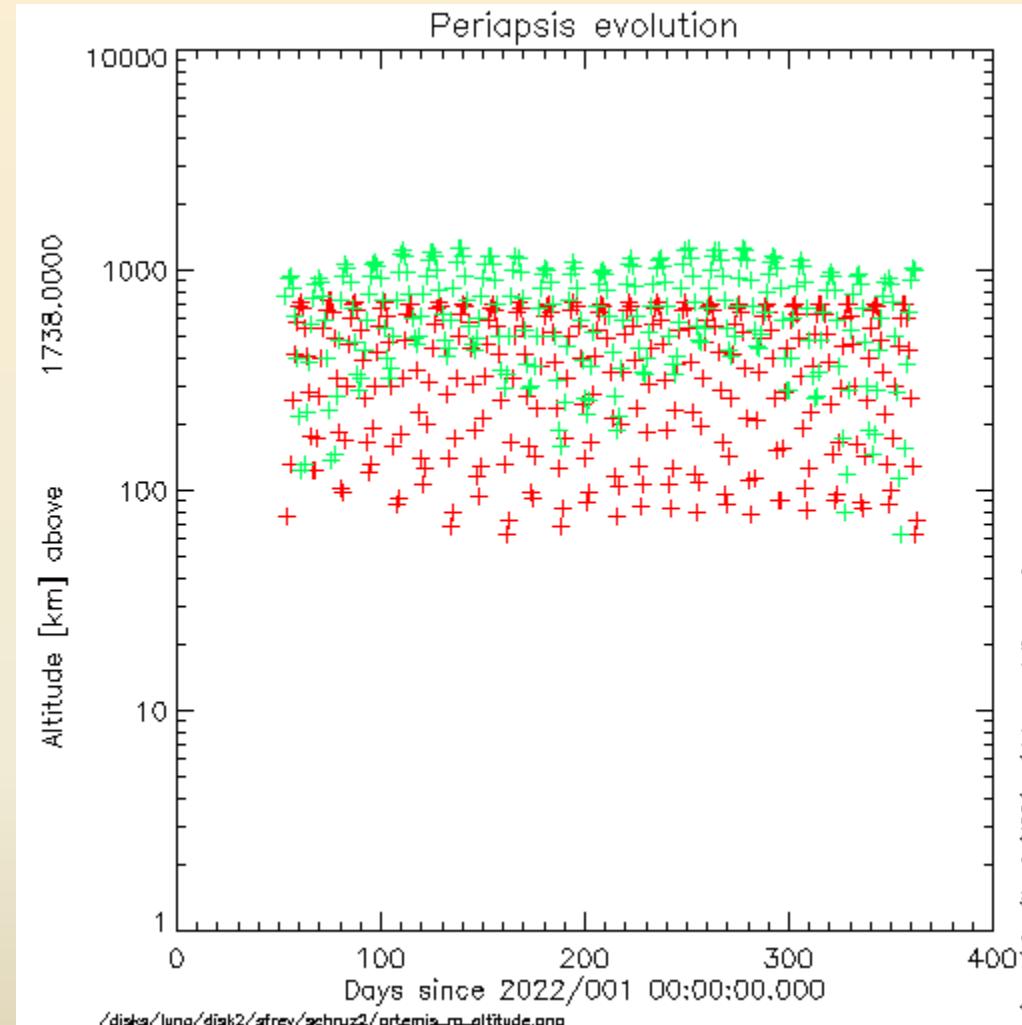
Tweak maneuver: $dT=2.5$ min
 $dra=+/-100$ km and fine tune of T
 1.2 m/s and 50 g fuel



WD Alignments in D14, D16, D17



Back-up

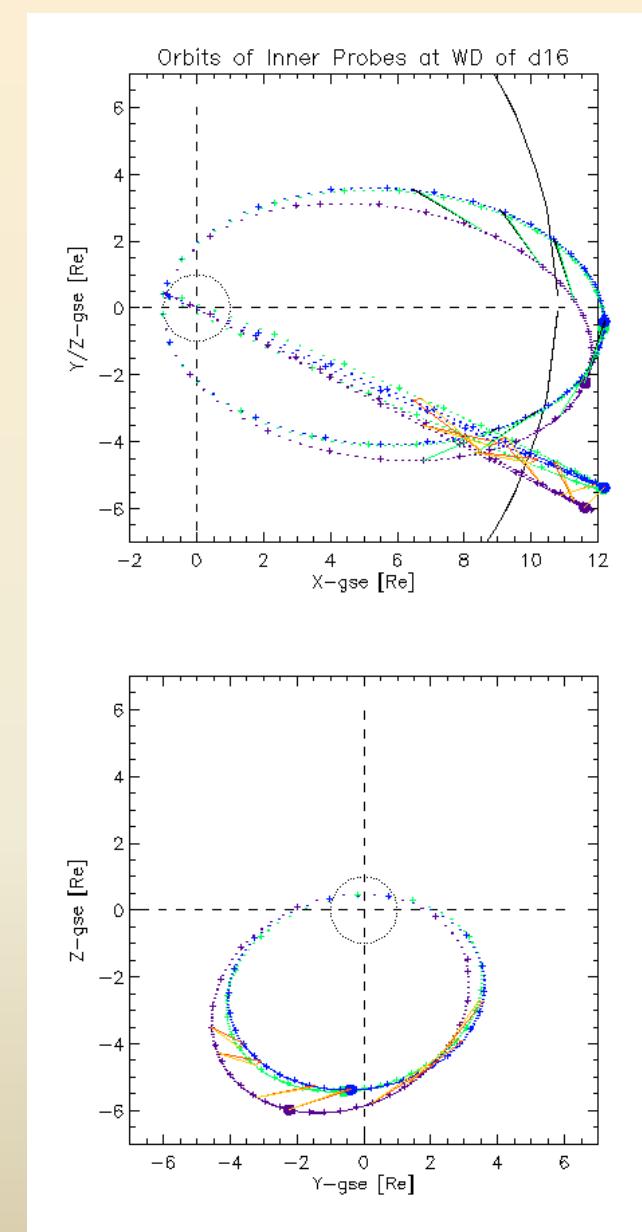
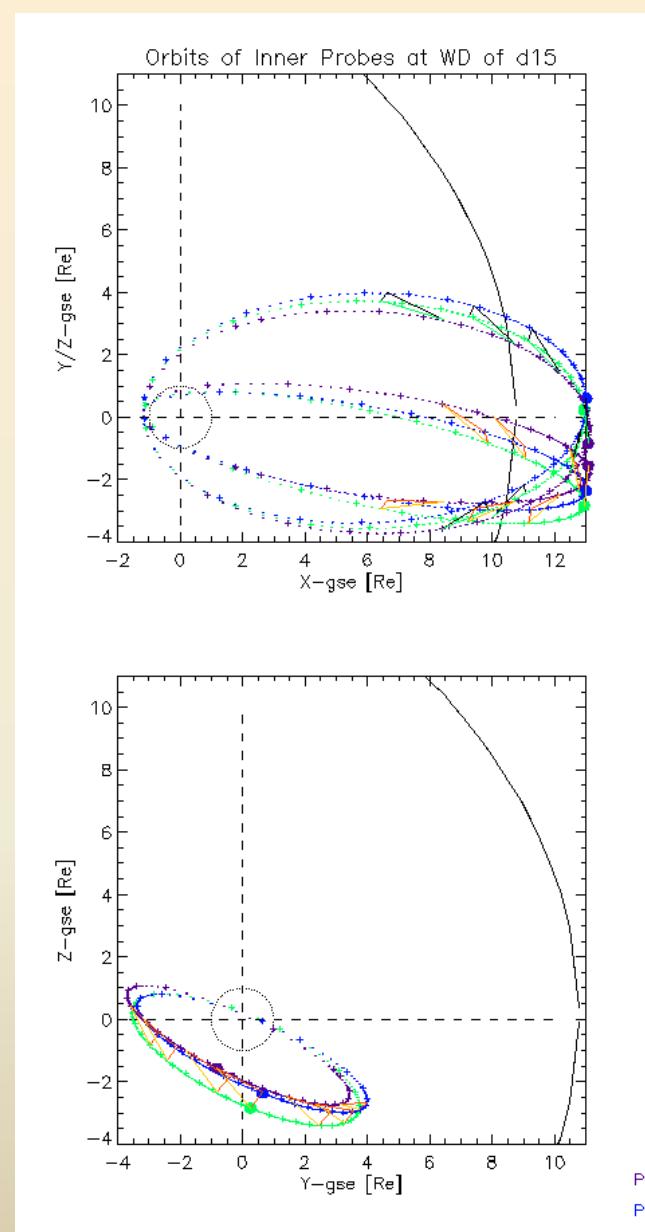
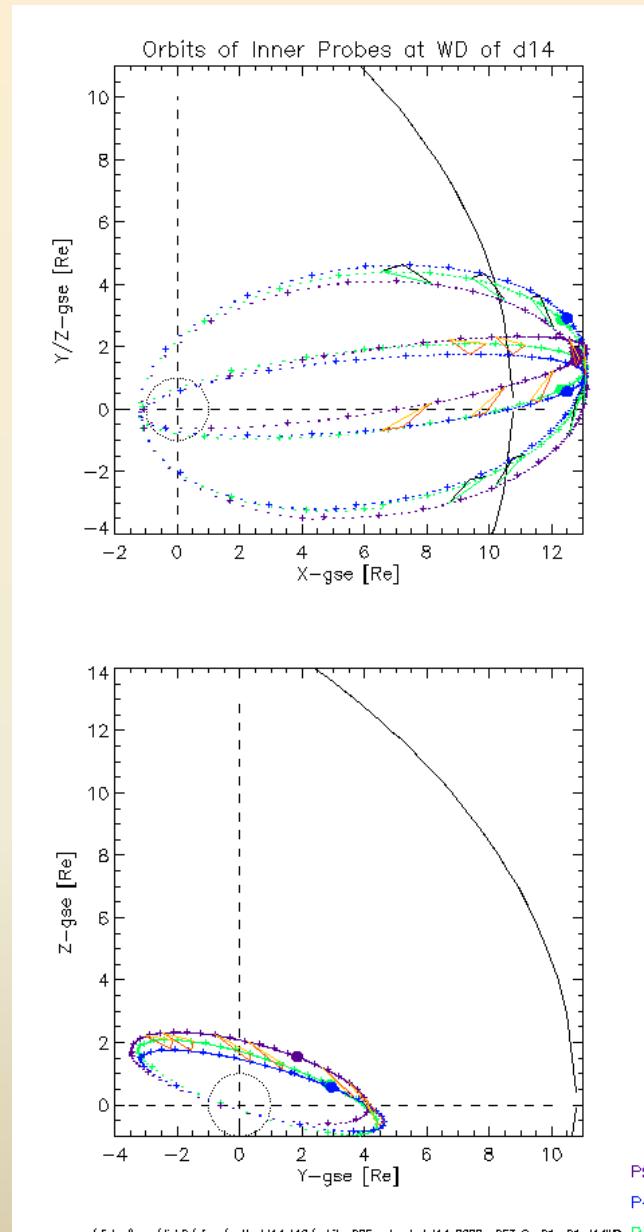


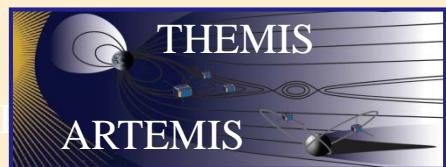
P1
P2

2022/053 - 2022/356



WD Alignments in D14, D16, D17





WD Alignments in T14, T15, T16

