

# CQE Film — Earth→Mars Cadenced Pipeline

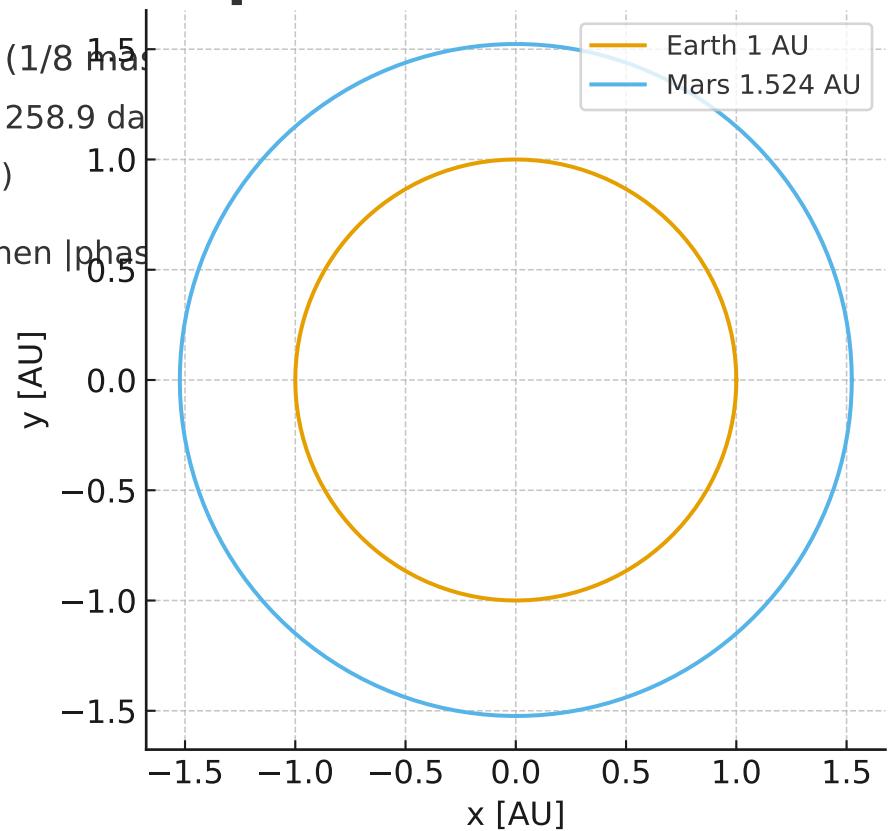
Geometry-only scene with lunar staging, small payloads (1/8 Mass)

Optimal phase angle  $\approx 44.34^\circ$  (Mars ahead); Transfer time  $\approx 258.9$  days

TMI  $\Delta v \approx 2.94$  km/s; MOI  $\Delta v \approx 2.65$  km/s (idealized Hohmann)

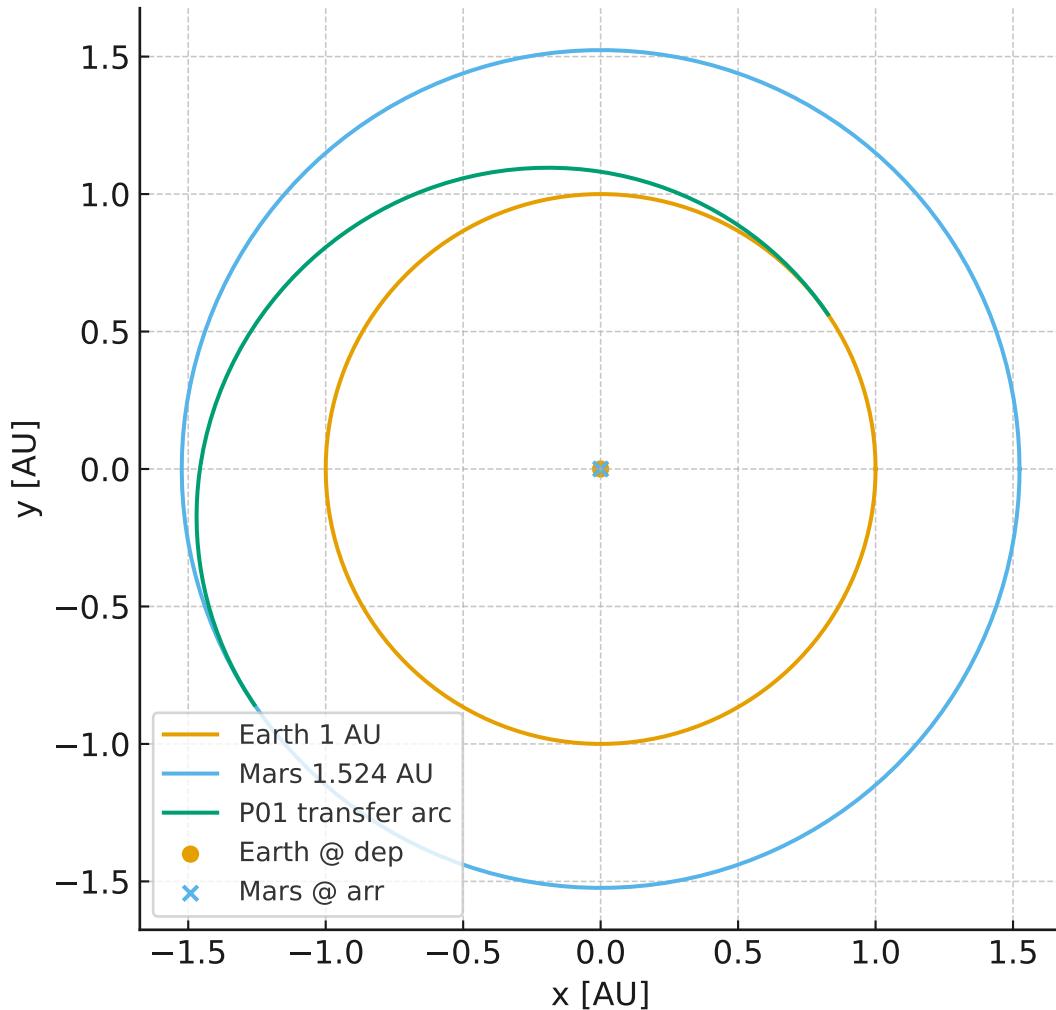
Cadence: every 30 days  $\rightarrow$  cislunar staging; commit to TMI when  $|phase| < 44.34^\circ$

Epoch: 2026-01-01 | Payloads: 16



## Cadenced Departures & Arrivals

- P01: launch 2026-01-01 → TMI 2027-02-05 → arrival 2027-10-21
  - P02: launch 2026-01-31 → TMI 2027-03-07 → arrival 2027-11-20
  - P03: launch 2026-03-02 → TMI 2027-04-06 → arrival 2027-12-20
  - P04: launch 2026-04-01 → TMI 2027-05-06 → arrival 2028-01-19
  - P05: launch 2026-05-01 → TMI 2027-06-05 → arrival 2028-02-18
  - P06: launch 2026-05-31 → TMI 2027-07-05 → arrival 2028-03-19
  - P07: launch 2026-06-30 → TMI 2027-08-04 → arrival 2028-04-18
  - P08: launch 2026-07-30 → TMI 2027-11-12 → arrival 2028-07-27
  - P09: launch 2026-08-29 → TMI 2027-11-12 → arrival 2028-07-27
  - P10: launch 2026-09-28 → TMI 2027-11-12 → arrival 2028-07-27
- ... and 6 more payloads (see CSV)



## Persona narration — P01

### Navigator:

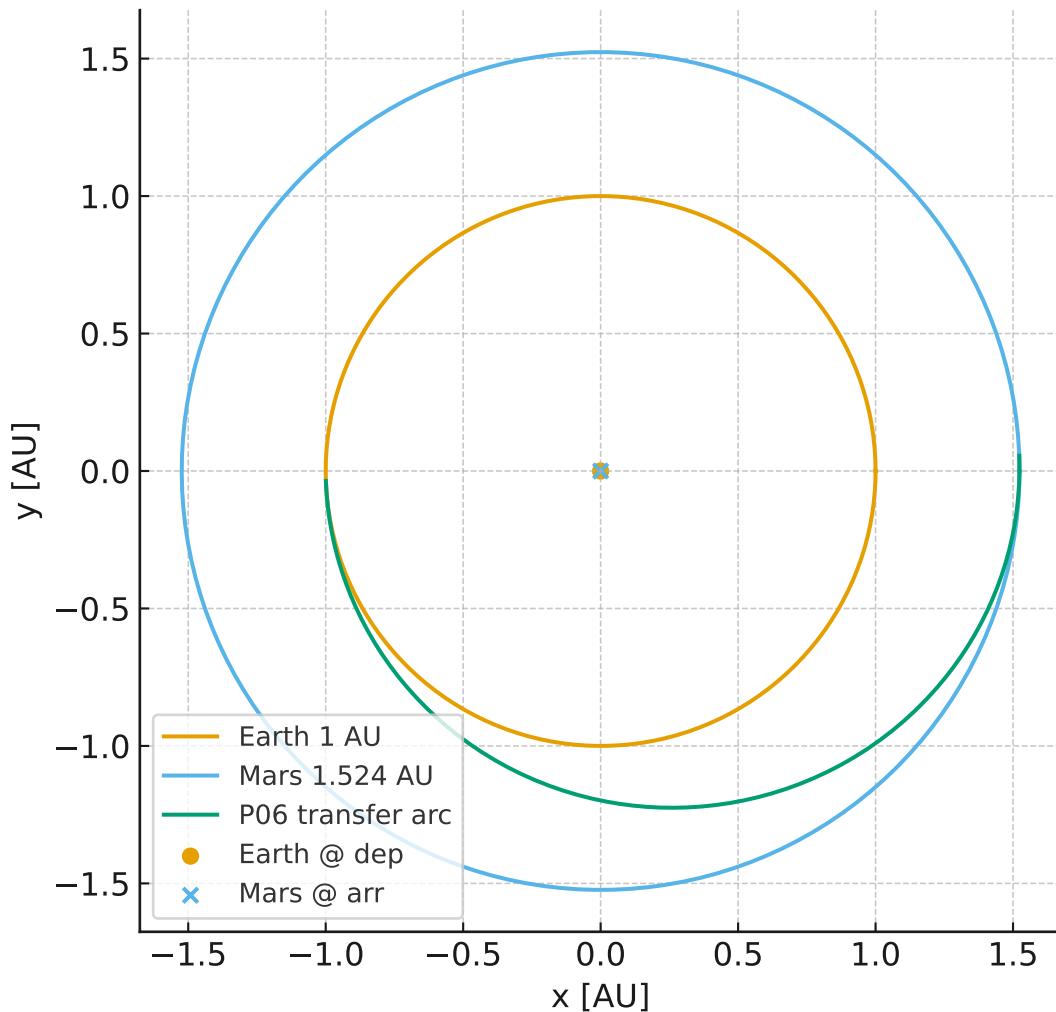
- At a sector cap with phase  $\approx$  optimal, we con
- All prior steps are simulated (LEO $\rightarrow$ cislunar s

### Controller:

- Apply  $\Delta v \approx 2.94$  km/s along tangential direct
- MOI at arrival:  $\Delta v \approx 2.65$  km/s

### Archivist:

- Ledger logs {4} commits only; interiors are v



## Persona narration — P06

### Navigator:

- At a sector cap with phase  $\approx$  optimal, we con...
- All prior steps are simulated (LEO $\rightarrow$ cislunar s...

### Controller:

- Apply  $\Delta v \approx 2.94$  km/s along tangential direct...
- MOI at arrival:  $\Delta v \approx 2.65$  km/s

### Archivist:

- Ledger logs {4} commits only; interiors are v...