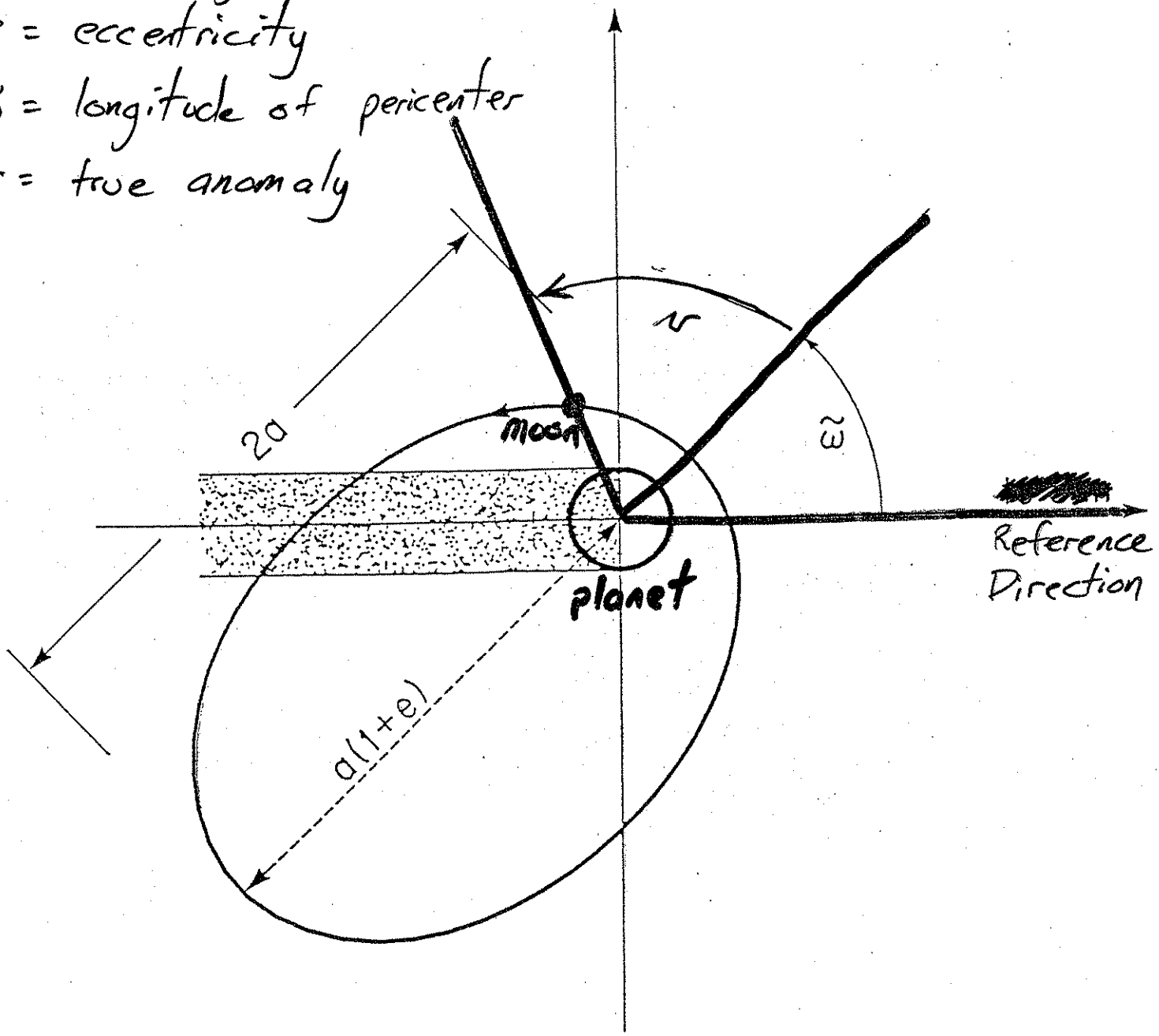
Orbital Elements

a = semimajor axis

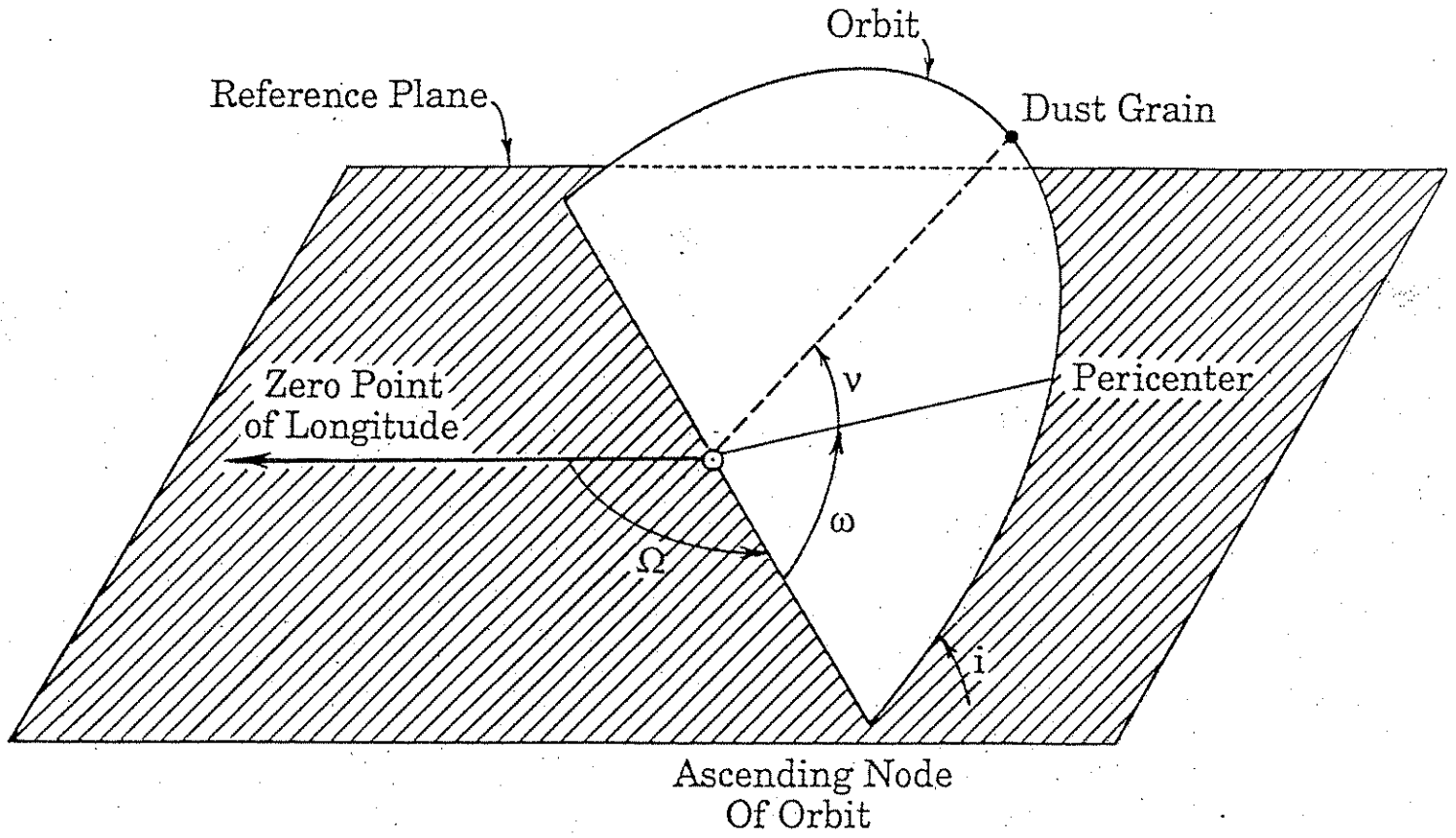
e = eccentricity

$\tilde{\omega}$ = longitude of pericenter

ν = true anomaly



4 orbital elements define a planar orbit. 2 more define the orientation of the orbit plane in 3D


Orbit
Reference Plane
Dust Grain
Zero Point
of Longitude
ν
Pericenter
ω
Ω
i
Ascending Node
Of Orbit

Orbital Elements

1.	a	semimajor axis
	q	$= a(1-e)$ pericenter distance
2.	e	eccentricity
3.	i	inclination
4.	Ω	longitude of the ascending node
5.	$\tilde{\omega}$	longitude of pericenter
	ω	argument of pericenter
6.	ν	true anomaly
	E	eccentric anomaly
	M	mean anomaly
	u	argument of latitude
	ℓ	true longitude
	T	time of pericenter passage

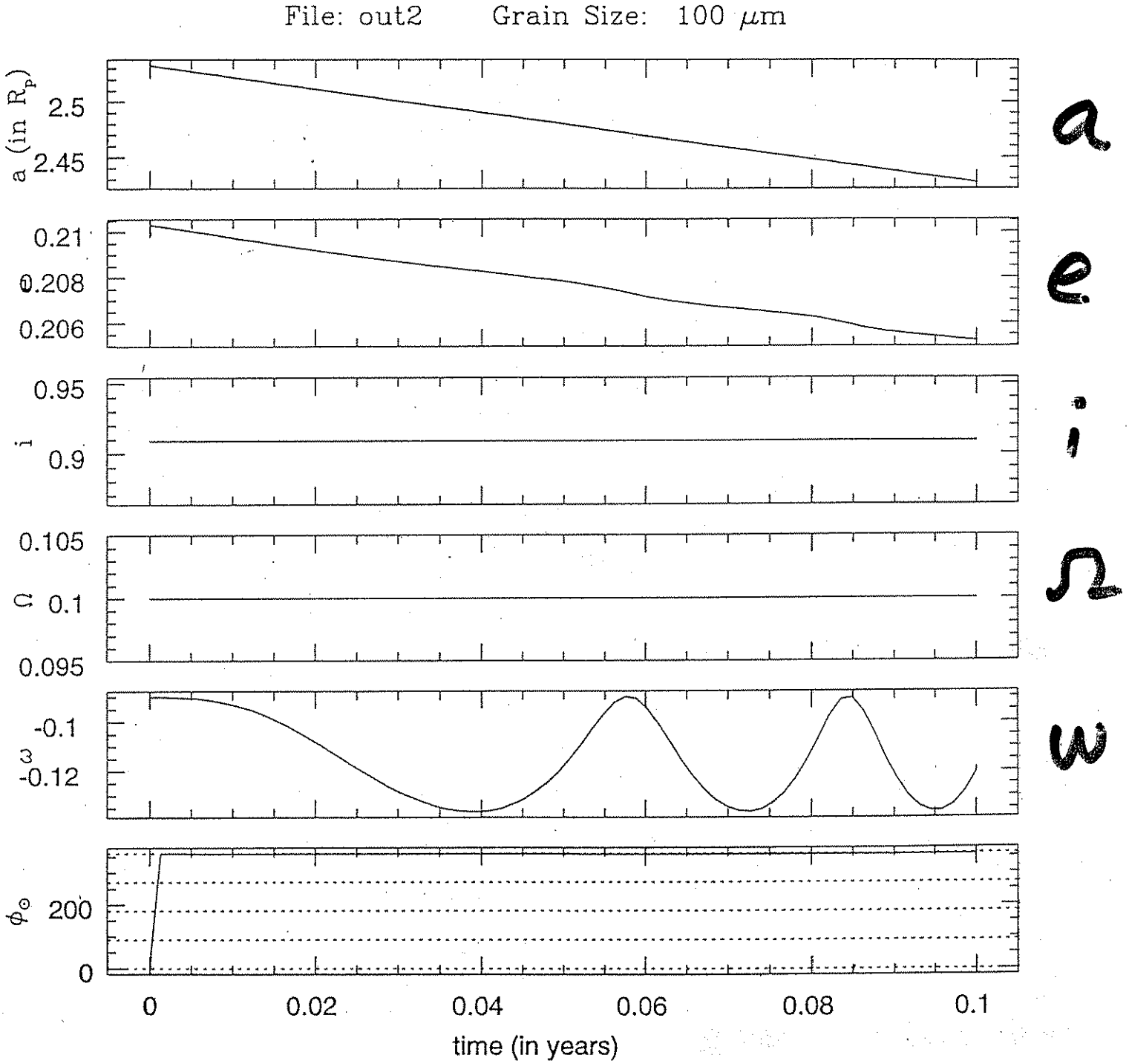
Common Sets:

$a, e, i, \Omega, \omega, \nu$

$a, e, i, \Omega, \tilde{\omega}, \ell$

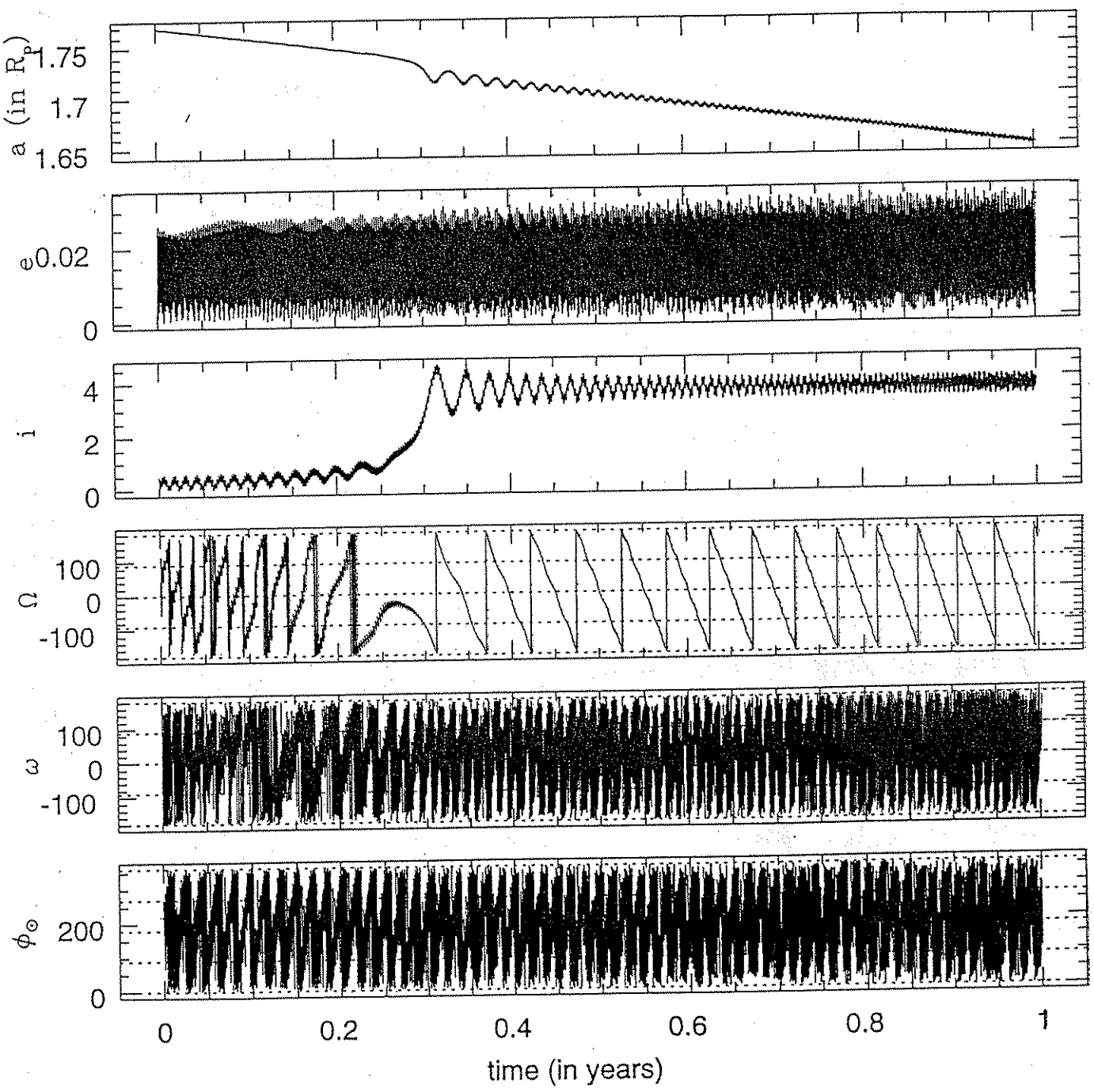
$q, e, i, \Omega, \omega, T$

Drag Force


File: out2 Grain Size: 100 μm
a (in R_p)
2.5
2.45
0.21
0.208
0.206
e
0.95
i
0.9
0.105
Ω
0.1
0.095
-0.1
ω
-0.12
φ⊙
200
0
0
0.02
0.04
0.06
0.08
0.1
time (in years)
a
e
i
Ω
ω

Drag + Resonance

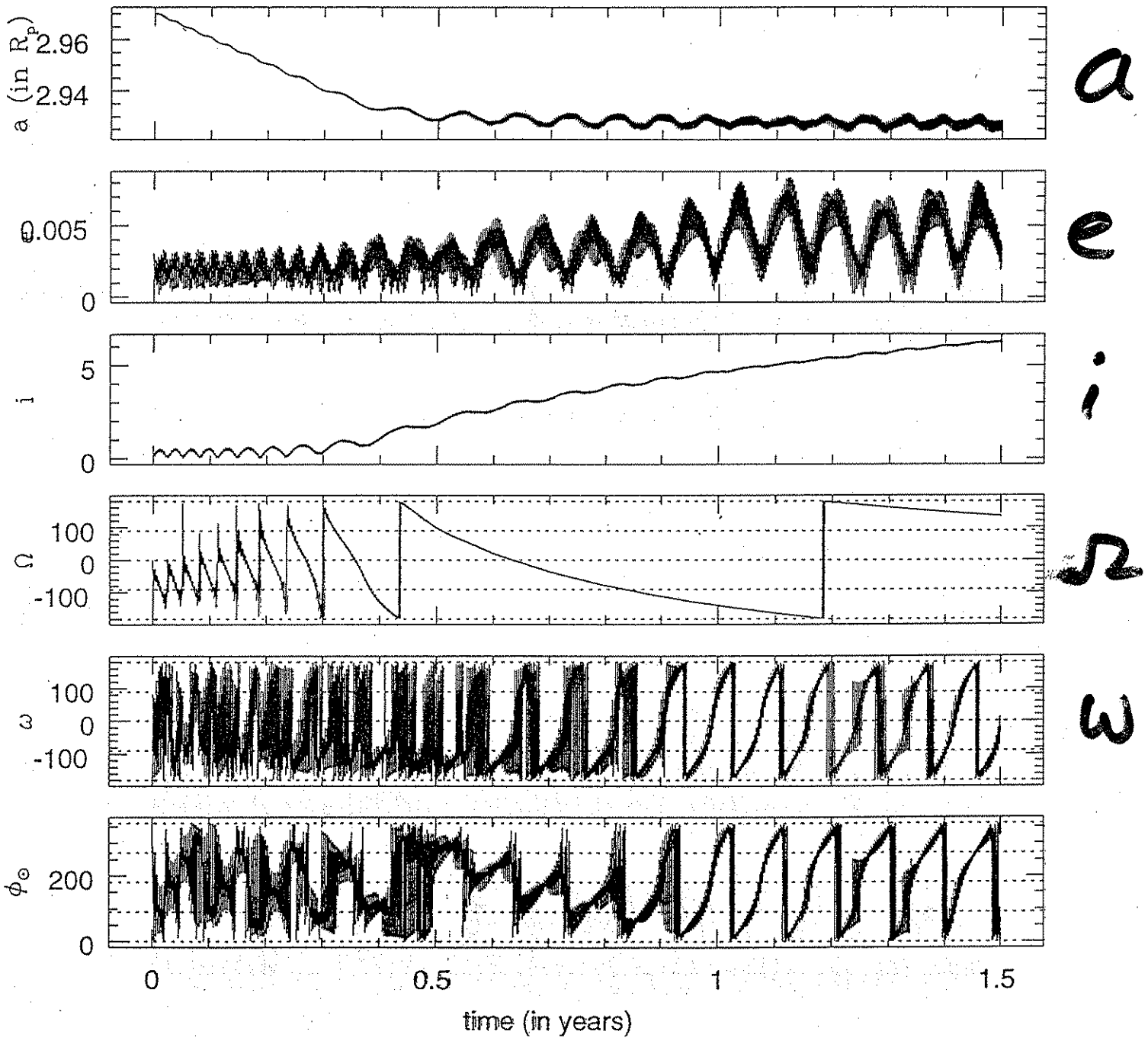
File: out3f Grain Size: 1 μm



a e i Ω ω

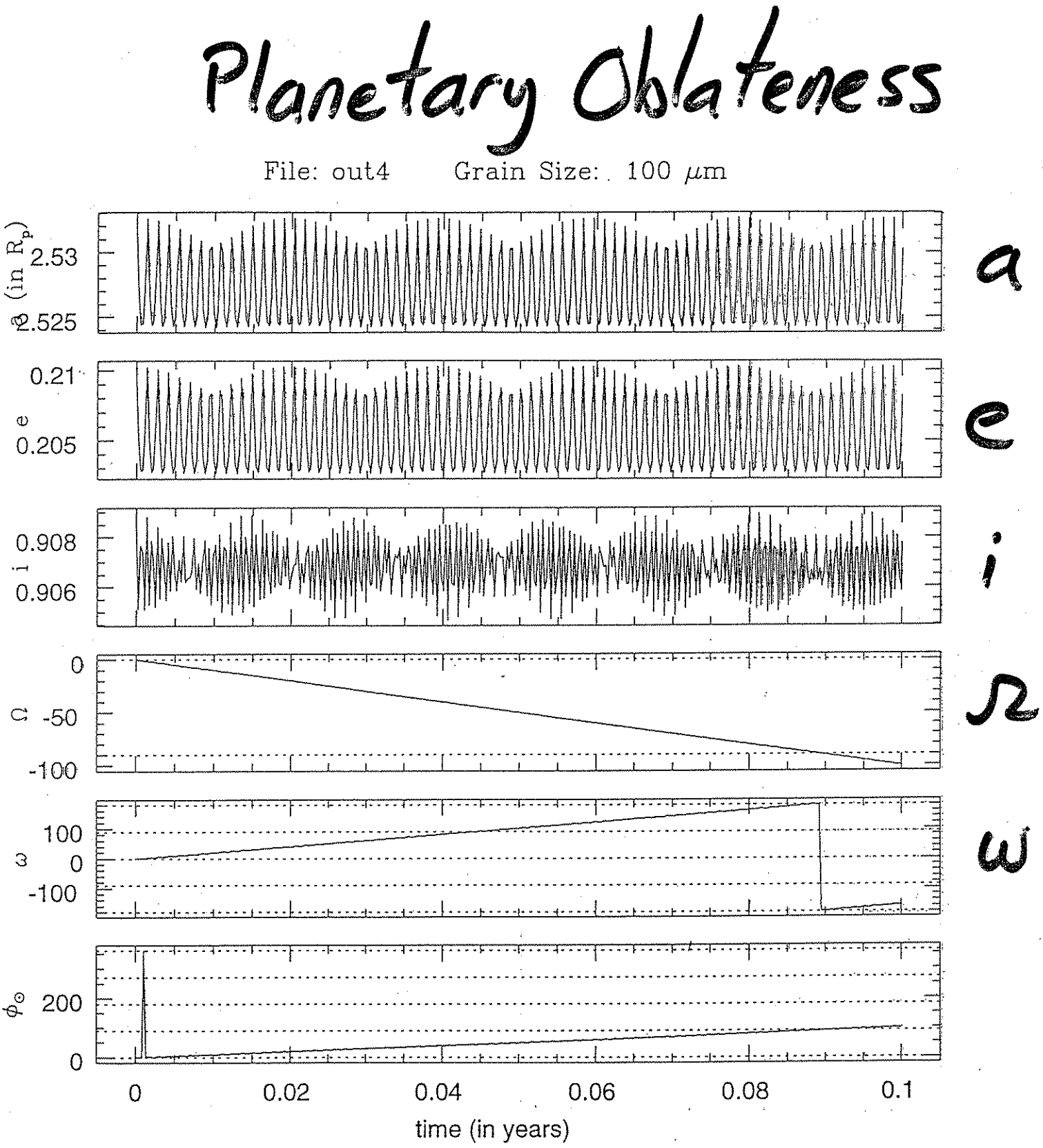
Drag + Resonance

File: out3k.s Grain Size: 1 μm

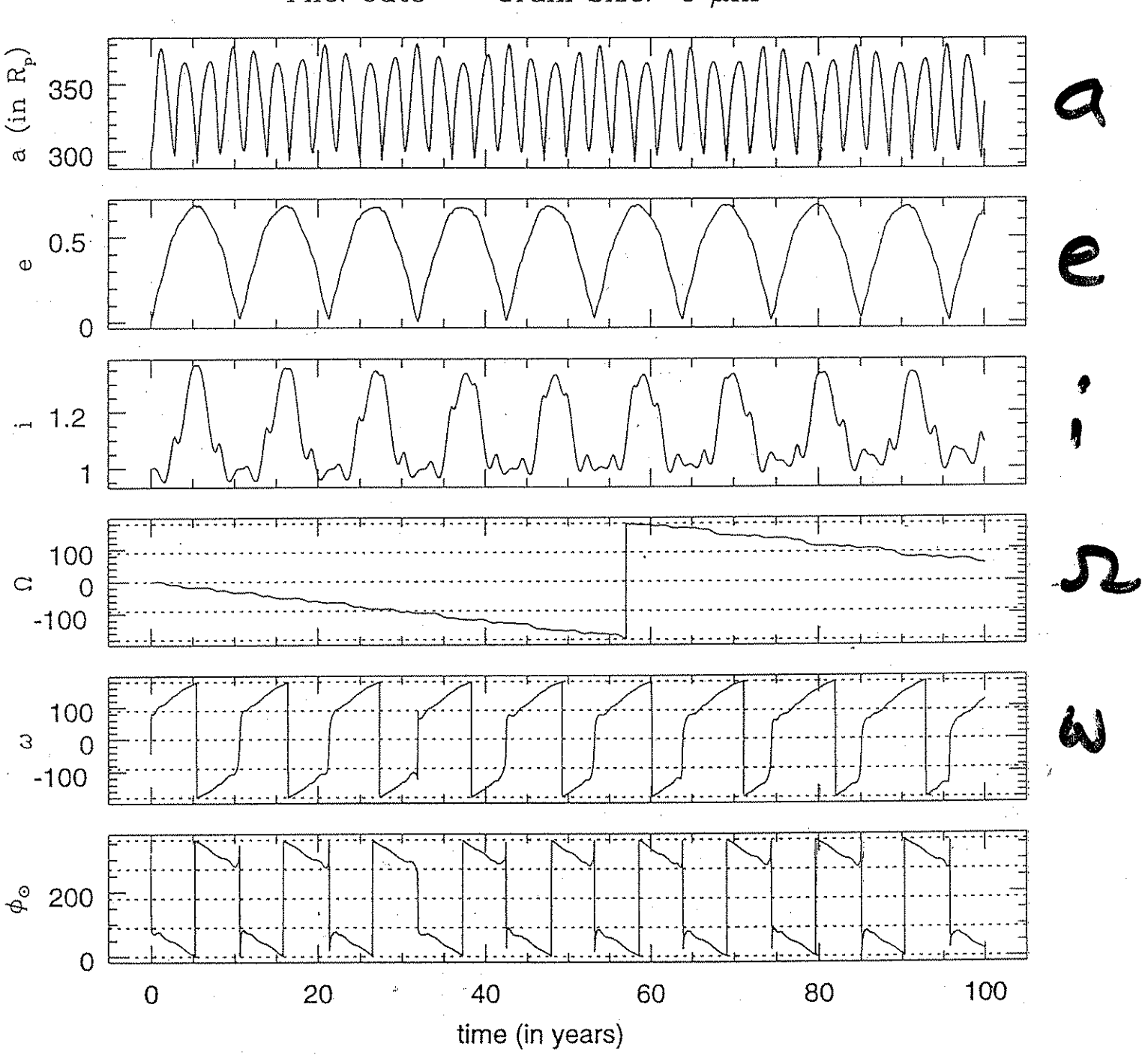


a e i Ω ω

Planetary Oblateness



Radiation Pressure



a

e

i

Ω

ω