HELIOPHYSICS, ECLIPSES & SPACE MISSIONS WORKSHOP, Gorno-Altaysk, 4-6 August 2008

Ancient Chronologies:

FOMENKO's Hypothesis vs Solar Eclipses

Léo DUBAL
virtual laboratory for archaeometry

Invention of a Linear Time Scale,
Fomenko's Findings & Hypothesis,
Modeling Delta T,
Measuring LOD & Tides,
Retrodiction of Solar Eclipses
How Robust is Common Chronology?

Abstract :
LLR & SLR data, collected over the last 45 years, provide crucial data over the time behaviour of the Length Of Day, i.e. LODs range of fluctuation at fortnightly, seasonaly, yearly and decenial level. Those limits comfort our smooth Earths deceleration Model explaining all reliable past observations of solar eclipses, including the one which occured during the reign of Akhenaton, 3345 years ago.

1540.08.05 Joseph Just **SCALIGER** born in Agen.
1572: Escaped the St Barthélemy's massacre….
..flew to Geneva… nominated Professor of Philosophy

1583: Revolution in Natural Philosophy

Galileo GALILEI noticed *pendulum* might be used to *keep* time…

The son of ***Julius Caesar*** « **Della SCALA** » *invented :*

Julian Days' linear time scale

the ideological « causal » tool so badly needed by the Reform

1606: Invention of Chronology

Thesaurus temporum (Repertory of dates)

The author would like to express the wish for this seven-volume edition to provide an impetus for the development of new empirico-statistical methods of studying historical texts so that the problems of ancient chronology can be solved in their entirety.

Anatoly T. Fomenko

Chronology 1

First volume of *History: Fiction or Science?* series
by A. T. Fomenko and G. V. Nosovskiy

Introducing the Problem
A Criticism of the Scaligerian Chronology
Mathematical and Statistical Dating Methods
Eclipses
Zodiacs
Global Chronology

A. T. Fomenko, March 2002

History:

Fiction

or Science ?

ВСЕМИРНАЯ ХРОНОЛОГИЯ КАК ТОЧНАЯ НАУКА

НОСОВСКИЙ Глеб Владимирович, ФОМЕНКО Анатолий Тимофеевич

Официальный сайт научного направления
НОВАЯ ХРОНОЛОГИЯ

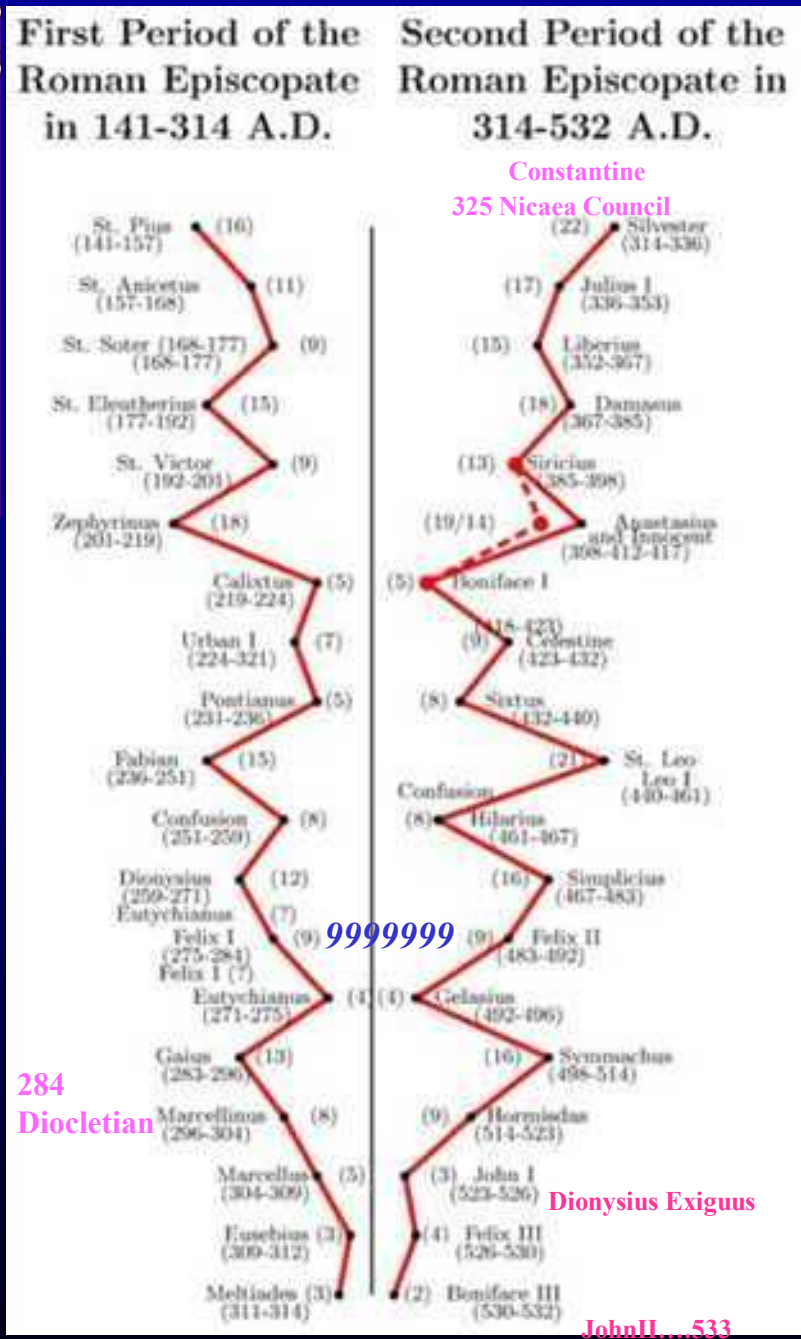
"Scaliger me seduxit" ("Скалигер сбил меня с пути")
"Terret me, ut video, studium chronologicum"
("Пугает меня, как вижу, занятие хронологией")

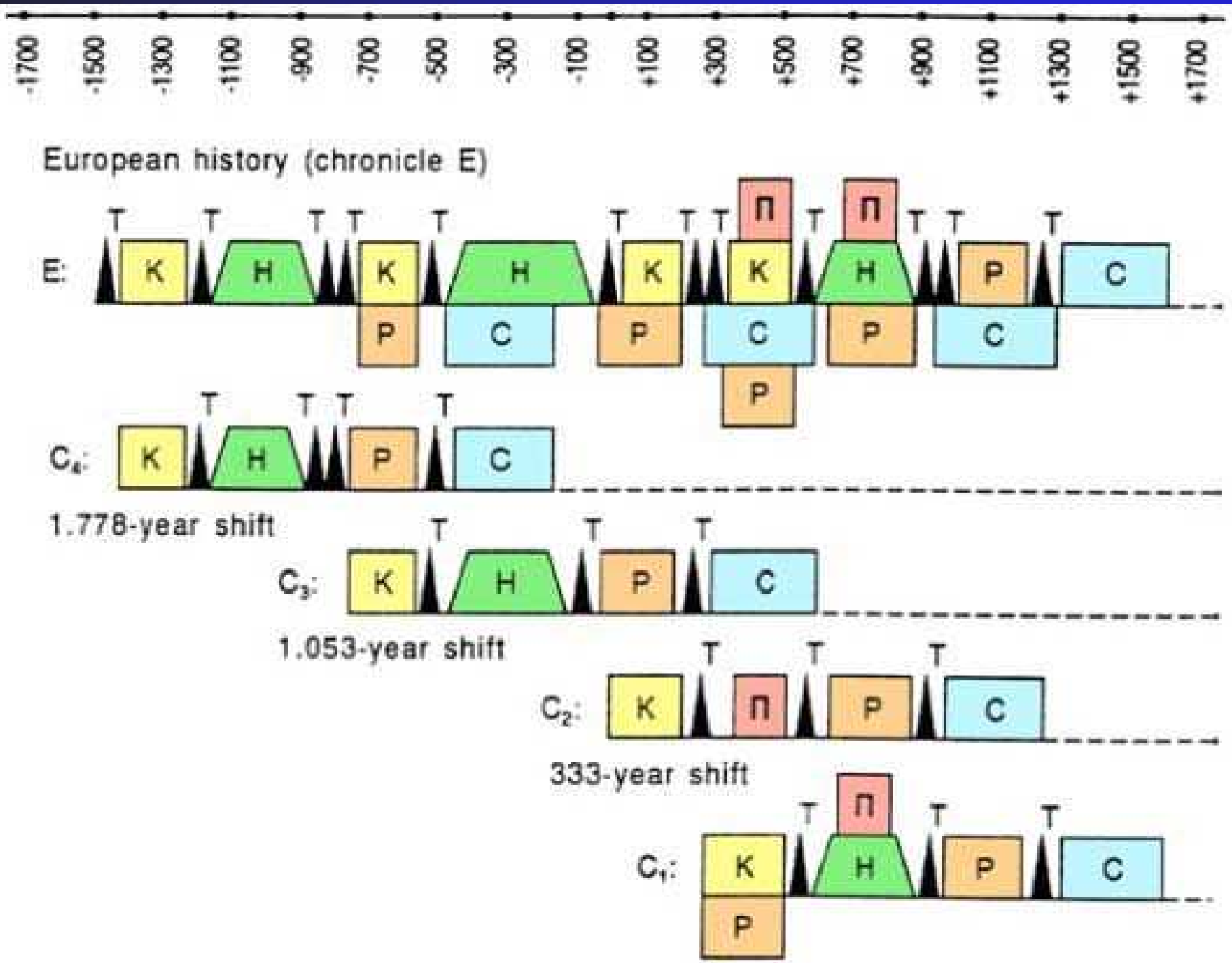
Johannes Kepler

Anatoly F. FOMENKO's Findings:
Ficticious History thanks to
Polychronic Dynasties !

(« cloning »)

Create respectability & legitimacy through extended « historical » record !!!




-1700
-1500
-1300
-1100
-900
-700
-500
-300
-100
+100
+300
+500
+700
+900
+1100
+1300
+1500
+1700
European history (chronicle E)
E:
C4:
1.778-year shift
C3:
1.053-year shift
C2:
333-year shift
C1:
T
K
H
П
P
C

Peloponesus War

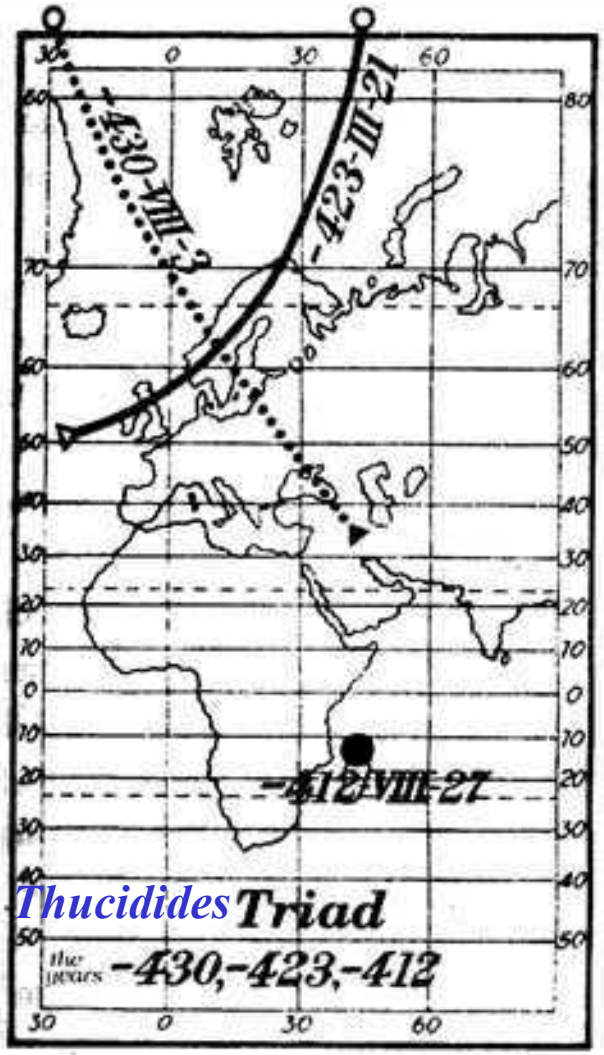


Fig. 2.6. The erroneous astronomical "solution" for the "Thucydides triad" of eclipses as offered by D. Petavius. The track of the lunar shadow for the first annular solar eclipse of 431 B.C. is represented by a dotted line. The track for the second solar eclipse of 424 B.C. is represented by a solid line, with the large dot standing for the zenith point of the lunar eclipse of 413 B.C. Taken from [544], Volume 4, page 505.

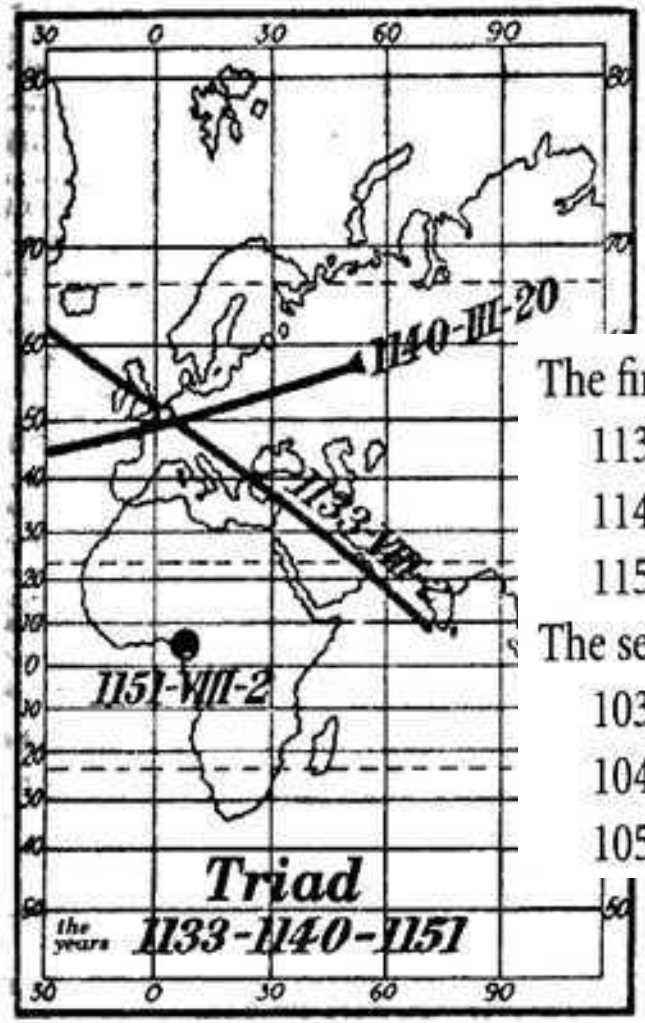


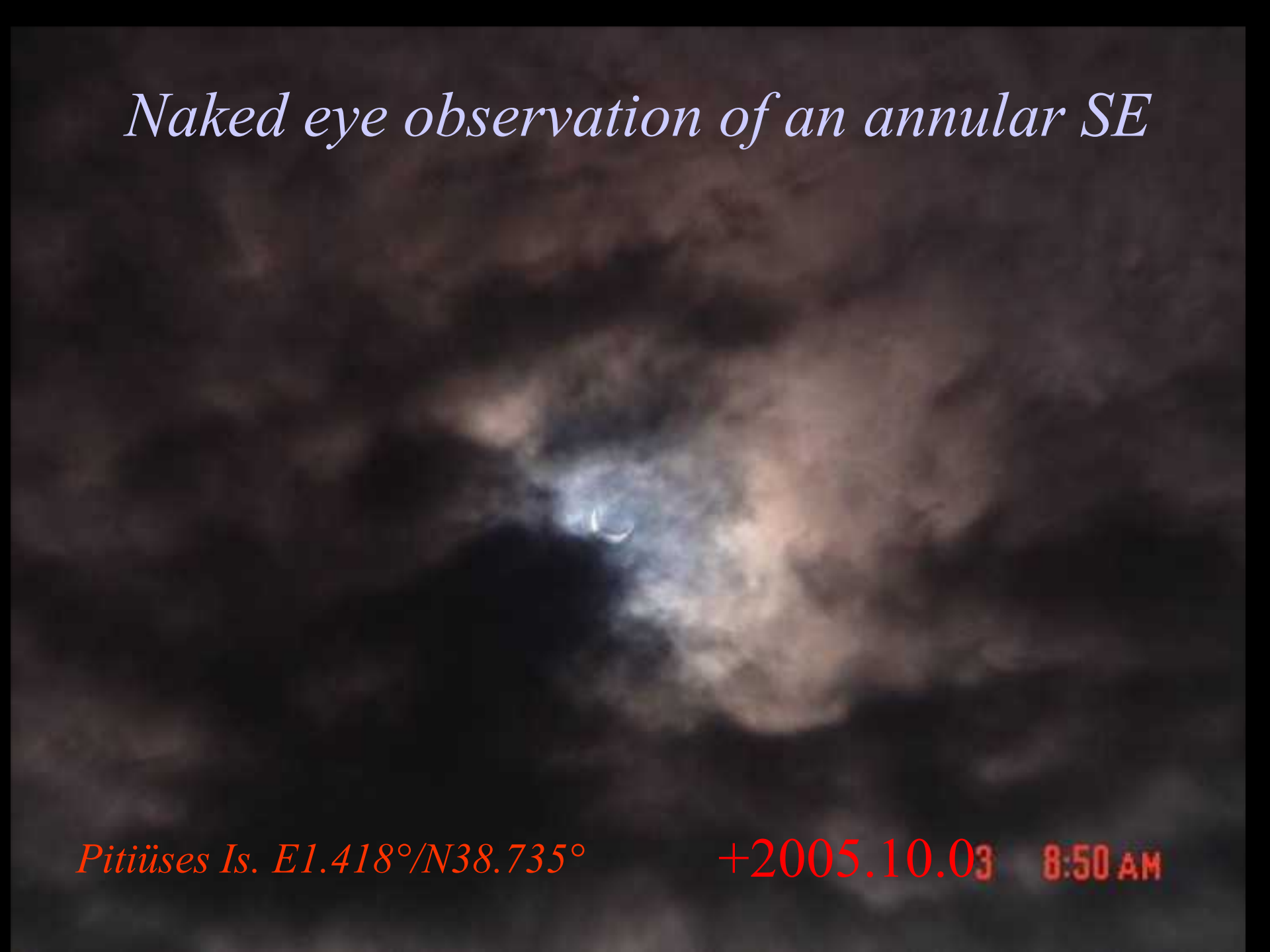
Fig. 2.9 The triad of eclipses described by the "ancient" Thucydides: 1133, 1140, and 1151 A.D. The solution was found by N. A. Morozov. One sees the lunar shadow tracks for the first two eclipses and the zenith visibility point for the lunar eclipse of 1151. Taken from [544], Volume 4, page 509.

The first solution *(N.A. Morozov)*:

1133 A.D., 2 August (total solar);
1140 A.D., 20 March (total solar);
1151 A.D., 28 August (lunar).

The second solution *(A.T. Fomenko)*:

1039 A.D., 22 August (total solar);
1046 A.D., 9 April (partial solar);
1057 A.D., 15 September (lunar).


Naked eye observation of an annular SE
Pitiüses Is. E1.418°/N38.735°
+2005.10.03
8:50 AM

Hipparchus *of Nicaea*

(-190 to -120)

Quoted by Pappus & Cleomedes

Saros 79/18

-128.11.20/13:46 UT

Duration: 31 sec

Elevation 11°

Total over Hellespont °Isnik (Nicaea)

4/5 over Alexandria

31° 11' 04,6" N <--> 31,18461°
29° 56' 55,4" E <--> 29,94873°

(éclipse partielle de soleil) Aide

Degré d'obscurité : 73,74%

Max

Grandeur de l'éclipse : 0,79089
Rapport Lune/Soleil : 1,00721

Phase (ΔT=12022,4s)	Date	Heure (TU)	Alt	Azi	P	V	CL
Début de l'éclipse partielle (C1) :	20/11/-128	12:47:27,7	+23,7°	226,1°	285°	03,9	
Maximum de l'éclipse :	20/11/-128	14:01:18,7	+11,2°	238,8°	002°	01,5	
Fin de l'éclipse partielle (C4) :	20/11/-128	15:06:37,4*	-01,2°	247,8°	079°	11,3	

Imagerie ©2008 TerraMetrics, Données cartographiques ©2008 Tele Atlas, AND, Europa Technologies

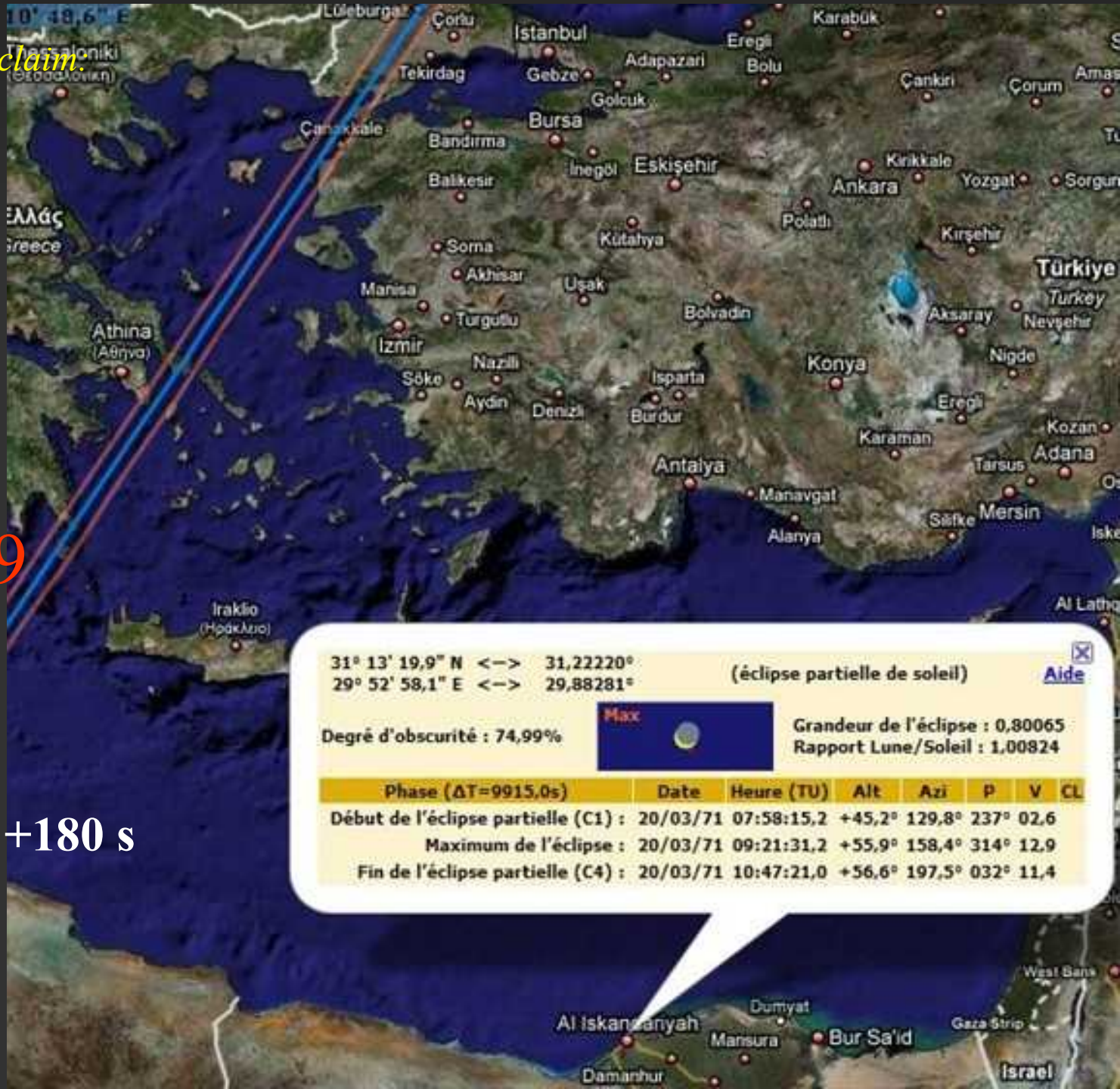
Zoltan Hunnivari's *claim:*
198 virtual years
gap : 870 to 1068

+198 yr =
11 Saros

Saros 79/29
+71.03.20

DeltaT shift : +180 s

is it *a lot ??*



archaeometry.org/saros.pdf

Observed Ancient Solar Eclipses

virtual laboratory for archaeometry

https://www.archaeometry.org contact: xponos@proton.me *latest revision*: **2026.01.22**

The 2026 Canon SAROS is based on our **constant deceleration Model** of the Earth's rotation: $\Delta T = a + c * t^2$ [s]

où $t = (36524.24)^{-1} * (JD - 2'378'497)$ [cy] with JD_o: +1800.01.01

It reflects the stability of the sea level over the last 6 millenia, a period we call the Heliocene.

Retrodictions are generated by Xavier JUBIER's **5MCSE** freeware in the **&dT=**xxxx url-*mode*.

c = 32.4 [s cy^{-2}] lies within PANG's limits for ancient SE, i.e.: 27.5 > **c < 32.5** [s cy^{-2}]**.**

a = - 20 [s] , *an* offset to take into account the mini post-Maunders rebound effect.

The period is limited **from -1911 up to +1912.** After this time, ***c*** *decreases* with the ***"geomorphic exit"*** out of the Heliocene, see daily measurements of LOD *(Length Of Day).*

The Canon SAROS lists **50 documented solar eclipses** prior to the creation of the Bureau Int.'l de l'Heure in 1913. Important are the eclipses anchoring **Calendrical Eras** ***(****Nilotic, HuangDi, AUC, Seleucid, Hirji, Anno Domini).* In our critical review appeared the case of two clergymen: the iman of Cordoba, in 218 AH and the bishop of Mende, in 1239 AD who misused the expression: *stars appeard in the sky as if it were midnight,* while they were outside of the path of totality.

The *retro*dictive power of our OASE DeltaT-Model is comforted by 6 fairly well documented observation reports of **4 total** & **2** ***pearled*** solar eclipses in :

- **584**.05.28 River Halas Battlefield: ALYATTES + Miletus: THALES .
- **135**.04.15 Babel Tower: ARSACE V (alias MITHRIDATES I *Philhellène*) .

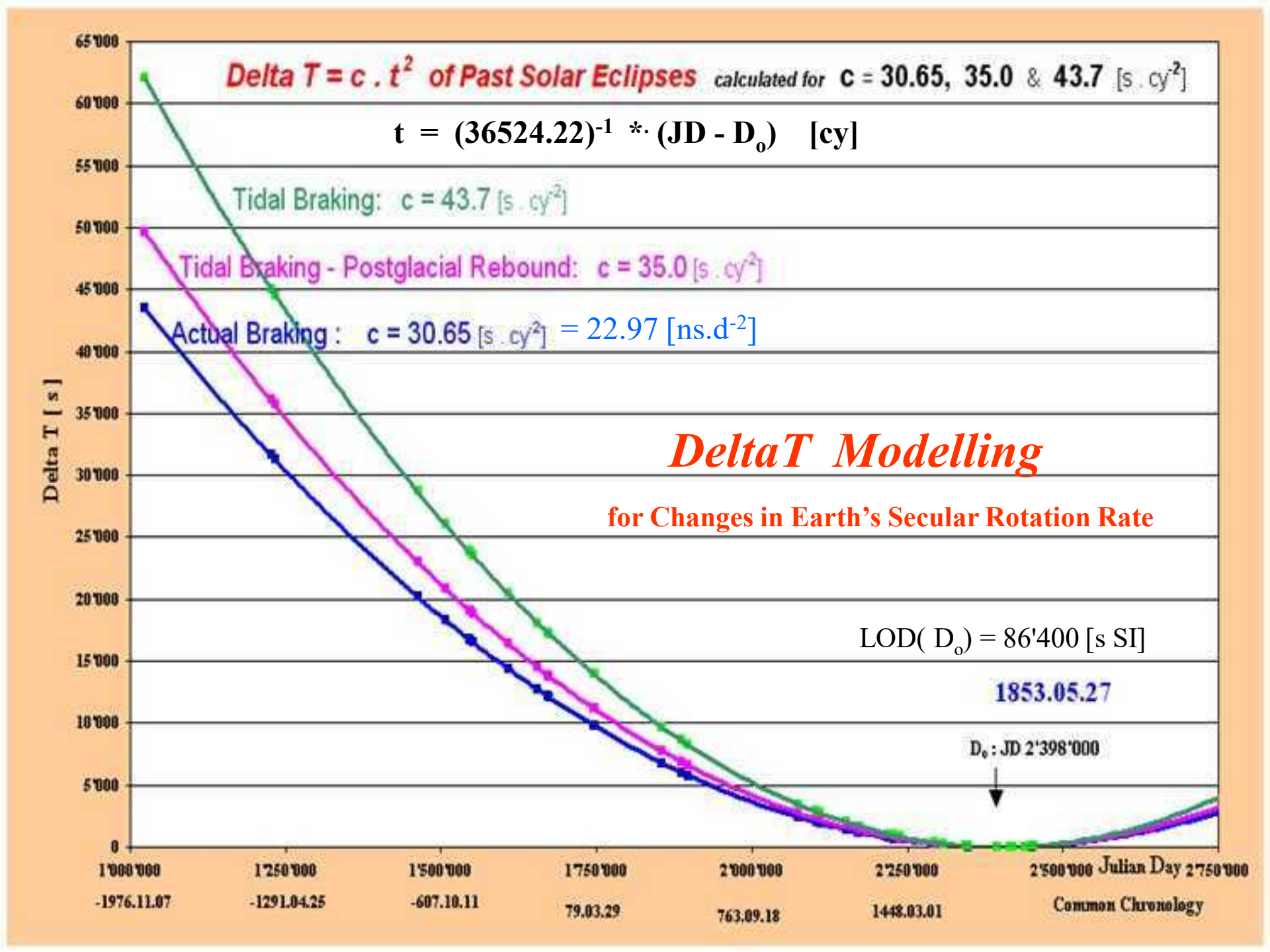
+1239.06.03 Cardeña Monastery .

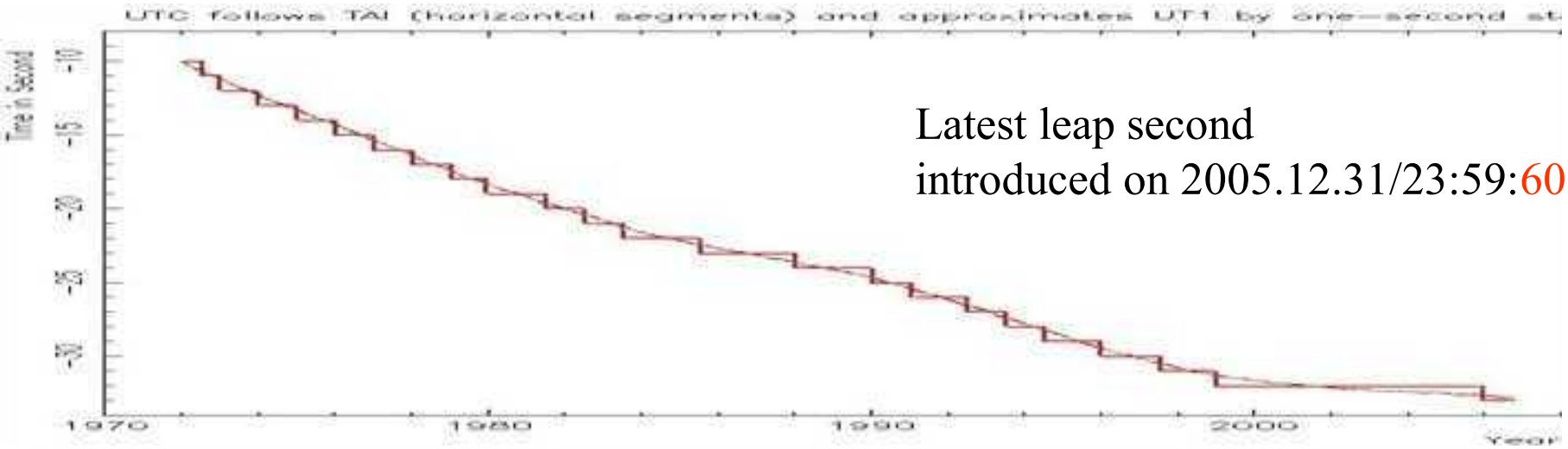
+1567.04.09 Vatican Observatory: Christopher CLAVIUS .

+1652.04.08 Carrickfergus : John WYBARD .

+1912.04.17 Ovar #10: F.M. da COSTA LOBO / Plaisance-Gd CroixXing: Léon GAUMONT / Becklingen #4: R.R. SCHORR / Hagenau #3: K.R.GRAFF

In the chart Delta T vs Years of Christophe de Reyff, those 6 events are marked in red .

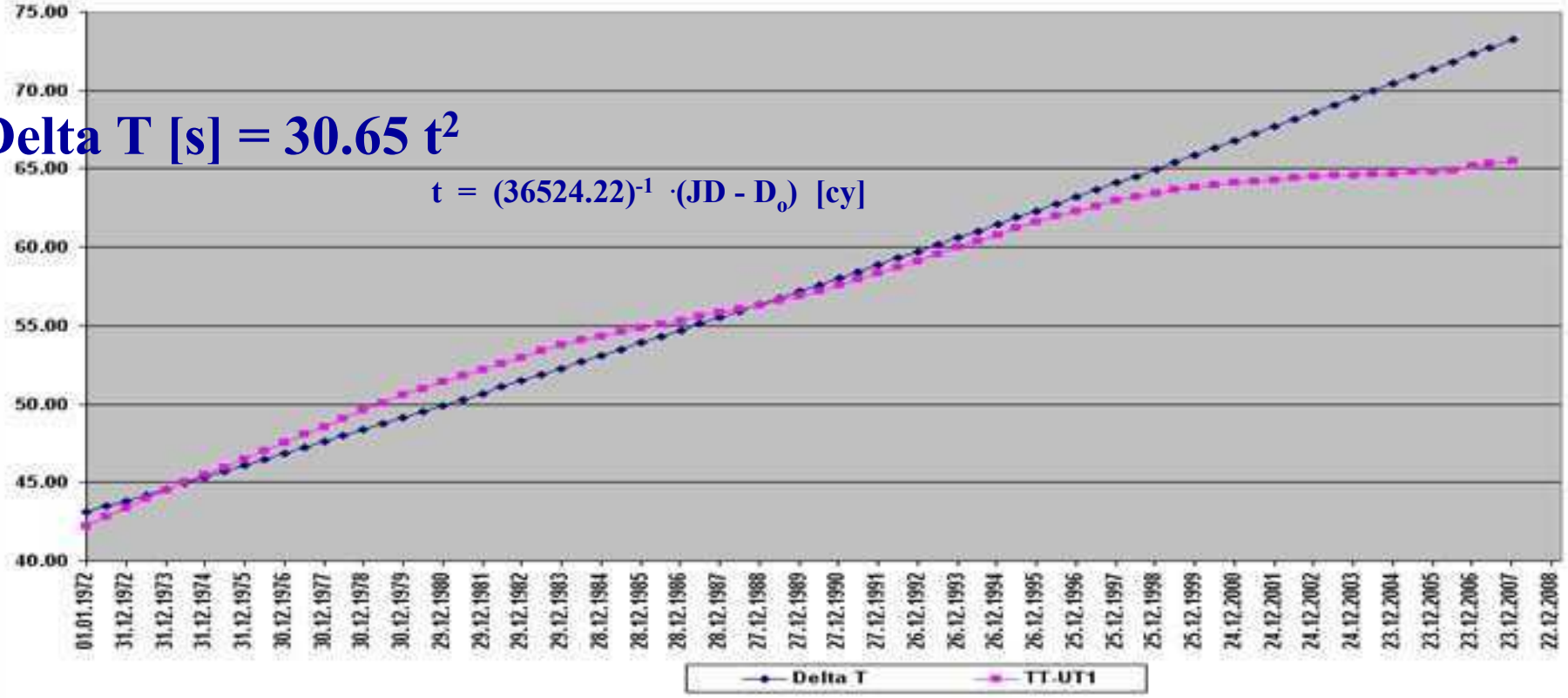

Delta T = c . t² of Past Solar Eclipses calculated for c = 30.65, 35.0 & 43.7 [s . cy⁻²]
t = (36524.22)⁻¹ *· (JD - D₀) [cy]
Tidal Braking: c = 43.7 [s . cy⁻²]
Tidal Braking - Postglacial Rebound: c = 35.0 [s . cy⁻²]
Actual Braking : c = 30.65 [s . cy⁻²] = 22.97 [ns.d⁻²]
DeltaT Modelling
for Changes in Earth's Secular Rotation Rate
LOD(D₀) = 86'400 [s SI]
1853.05.27
D₀ : JD 2'398'000
Delta T [s]
65'000
60'000
55'000
50'000
45'000
40'000
35'000
30'000
25'000
20'000
15'000
10'000
5'000
0
1'000'000
-1976.11.07
1'250'000
-1291.04.25
1'500'000
-607.10.11
1'750'000
79.03.29
2'000'000
763.09.18
2'250'000
1448.03.01
2'500'000
Julian Day
2'750'000
Common Chronology

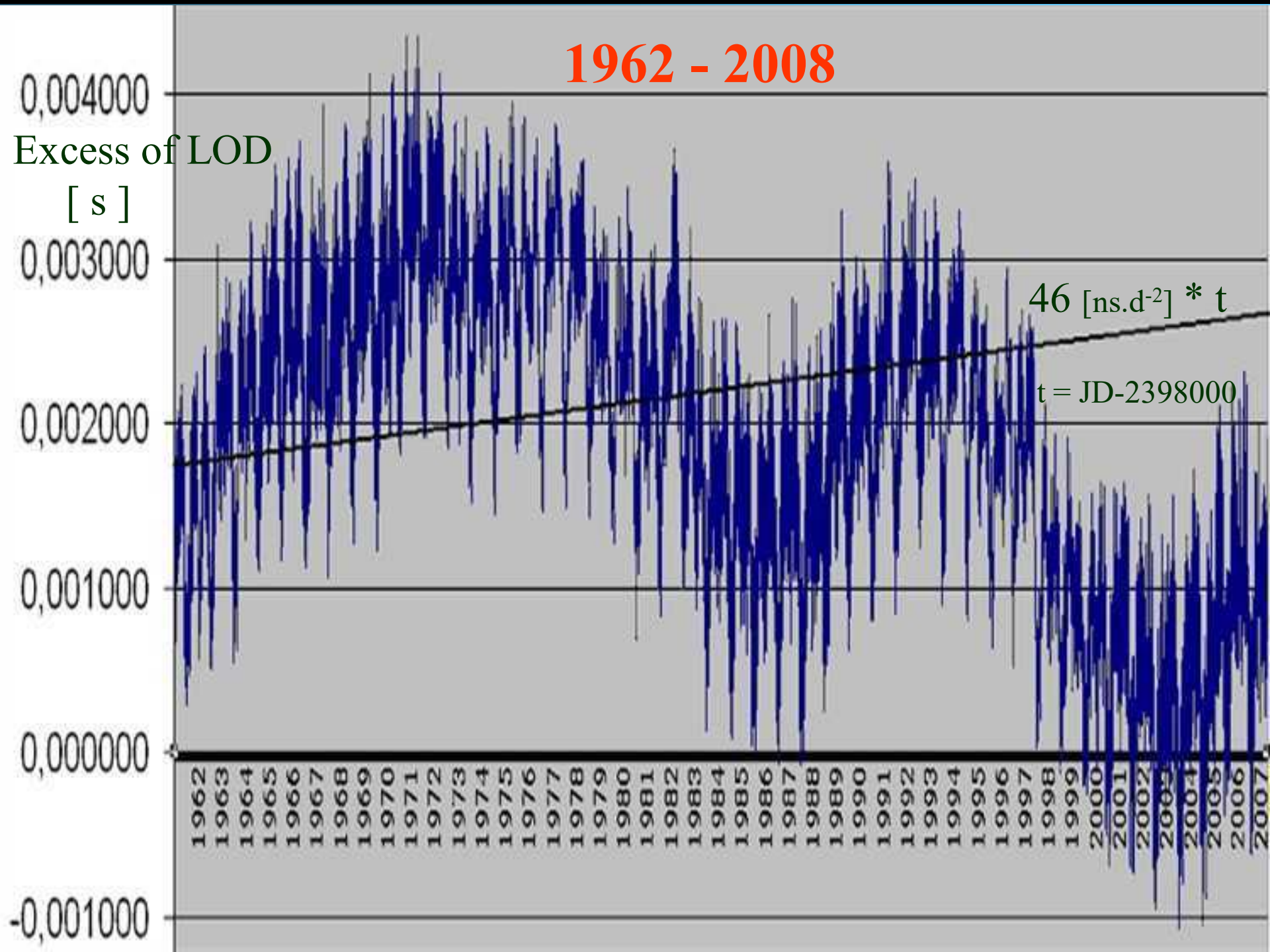


Latest leap second
introduced on 2005.12.31/23:59:60

Delta T [s] = 30.65 t^2

$t = (36524.22)^{-1} \cdot (JD - D_o)$ [cy]




1962 - 2008
0,004000
Excess of LOD
[s]
0,003000
0,002000
0,001000
0,000000
-0,001000
46 [ns.d-2] * t
t = JD-2398000
1962
1963
1964
1965
1966
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
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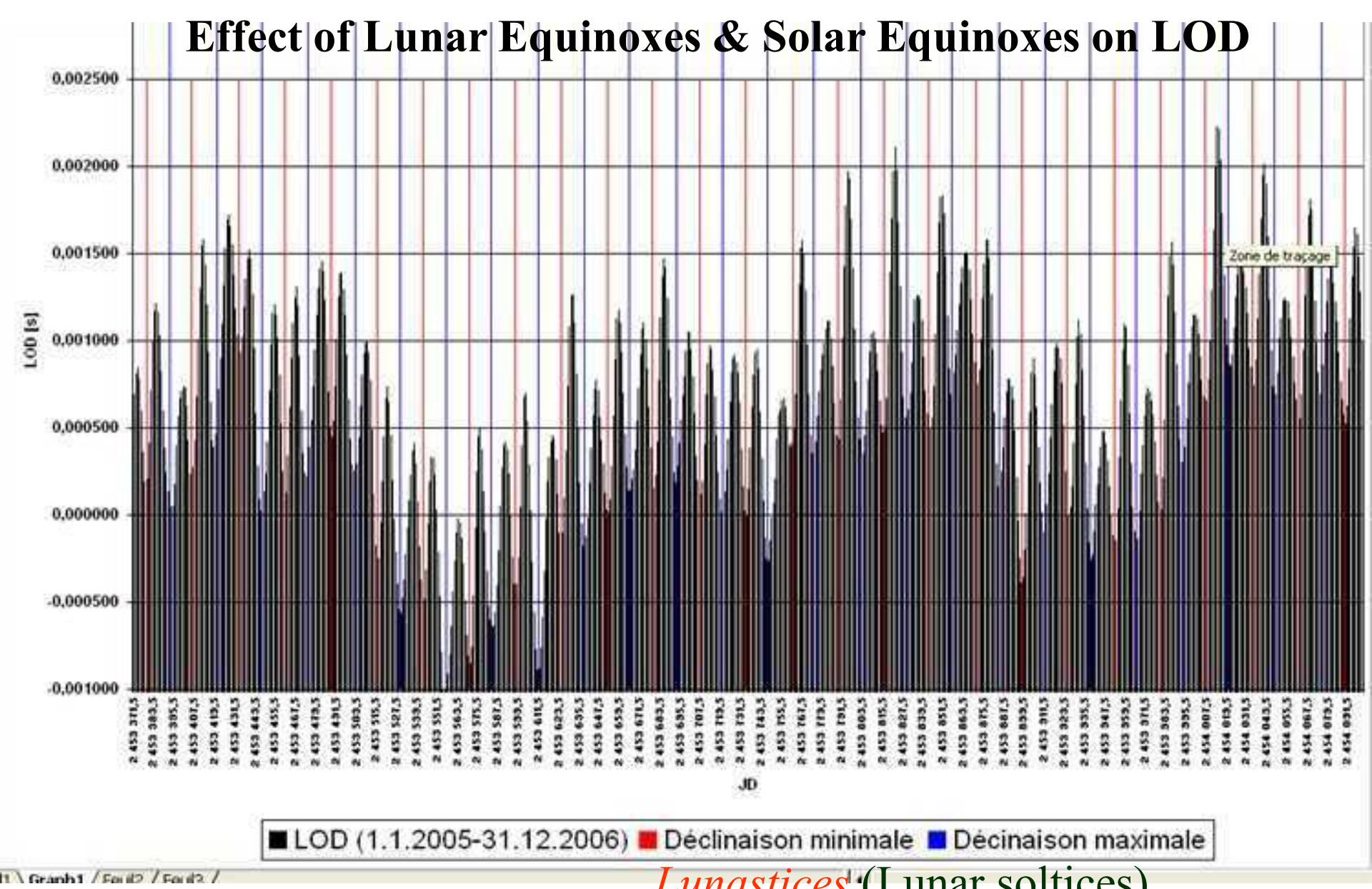
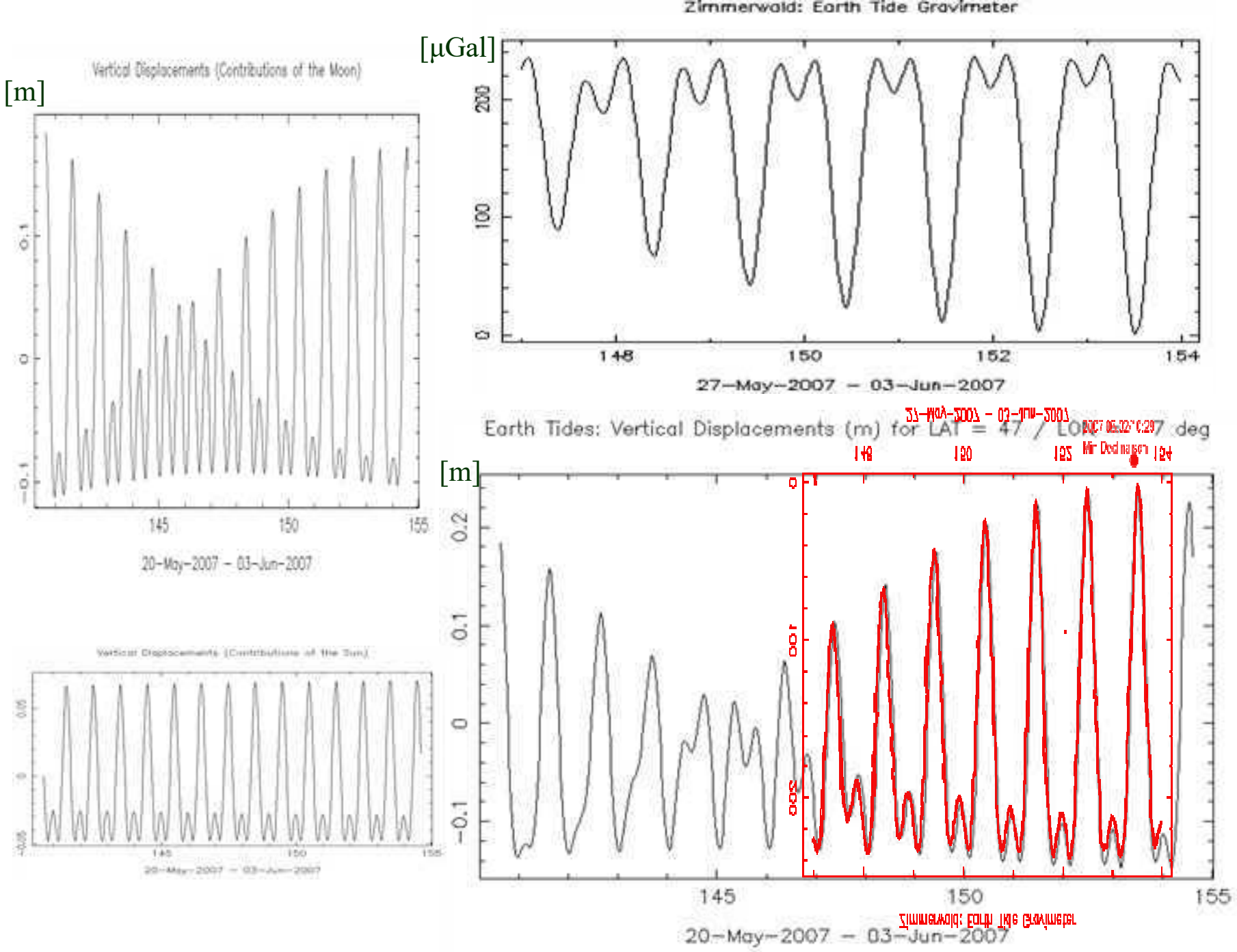
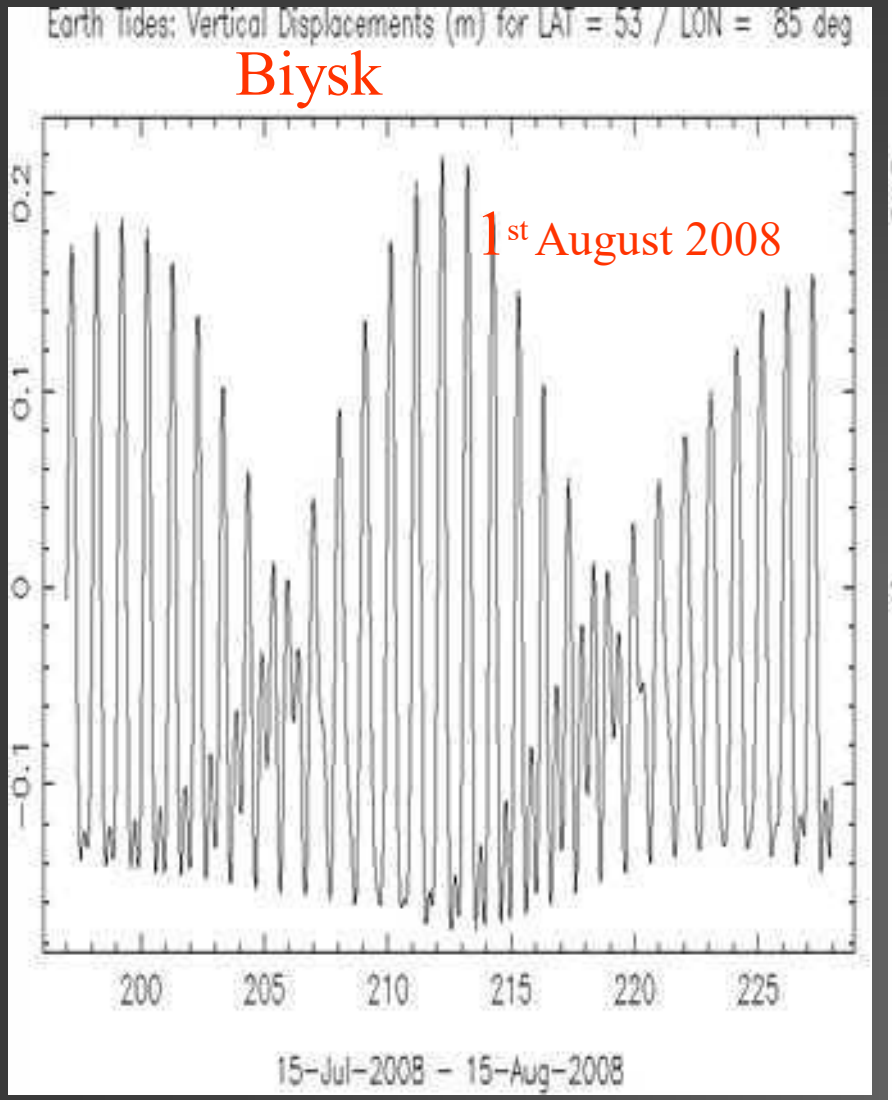
2006
2007

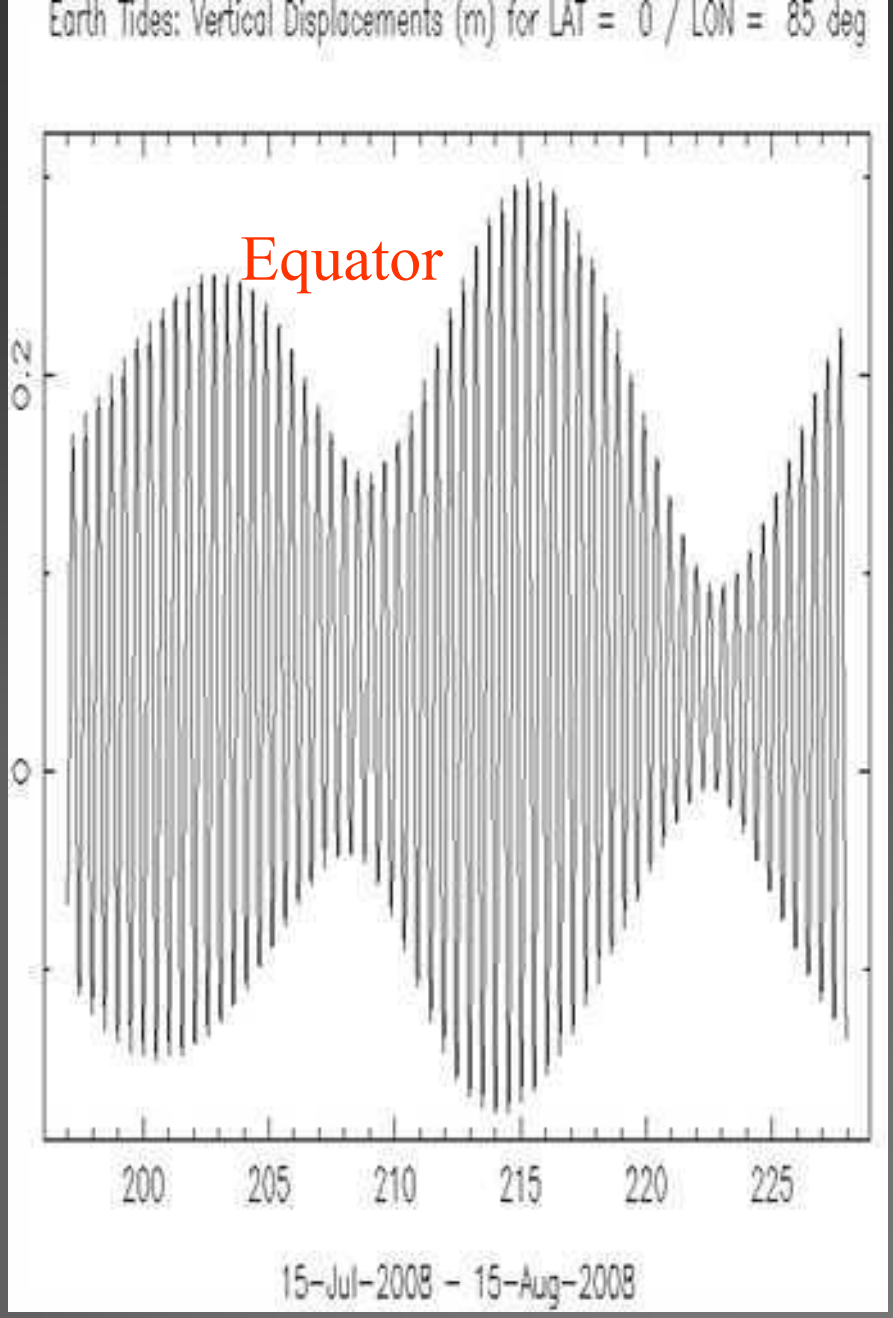


Lunastices (Lunar soltices)

weekly amplitude change in LOD: 10^3 x weekly average dissipation

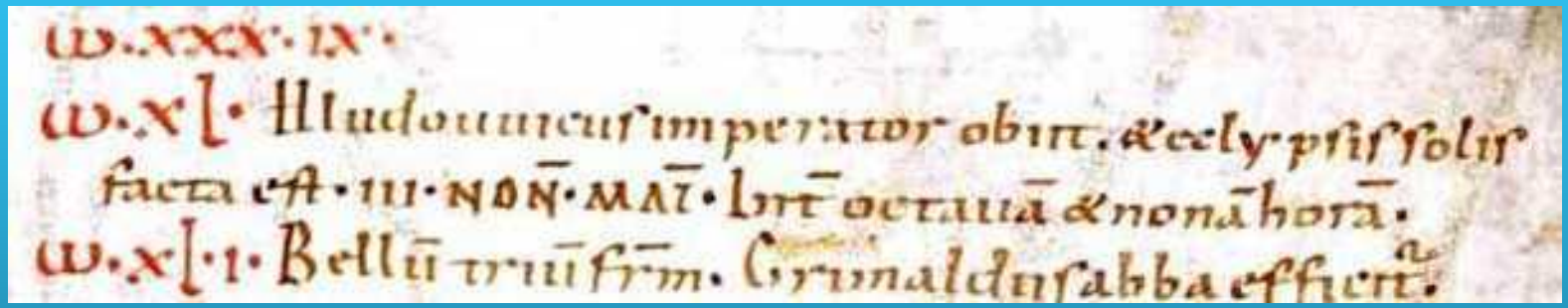

Zimmerwald: Earth Tide Gravimeter
[µGal]
200
100
0
148
150
152
154
27–May–2007 – 03–Jun–2007
Vertical Displacements (Contributions of the Moon)
[m]
0.1
0
–0.1
145
150
155
20–May–2007 – 03–Jun–2007
Vertical Displacements (Contributions of the Sun)
Earth Tides: Vertical Displacements (m) for LAT = 47 / LON
[m]
0.2
0.1
0
–0.1
145
150
155
20–May–2007 – 03–Jun–2007


Earth Tides: Vertical Displacements (m) for LAT = 53 / LON = 85 deg
Biysk
1st August 2008
0.2
0.1
0
-0.1
200
205
210
215
220
225
15-Jul-2008 - 15-Aug-2008


Earth Tides: Vertical Displacements (m) for LAT = 0 / LON = 85 deg
Equator
0.2
0
200
205
210
215
220
225
15-Jul-2008 - 15-Aug-2008

Codices Electronici Sangallenses 915:

years 775 et 900 (pp.200-206) : similar calligraphy then, changes .



SE 840.05.05...the very first event dated in terms of CE (Common Era)

Death of LOUIS I, usually assumed : 840.06.20 /

Sunrise at St-Gallen: 03:51UT add 8h30, gives 12:21 UT while 5MCSE retrodicts 12:36 UT....

Probably a copy 60 years afterfacts: the chronological order is not respected, and totality is not described.

*The original eclipse's report is the "*Chronicon" of **ANDREAS Presbyter Bergomas,** a copy of which was in St-Gallen :

Indictione tertia *sic fuit* ***sol obscuratus*** *in hoc mundo,* ***et stellas in celo apparebant,***

3. Nonas Magias, ora nona, in laetanias Domini, *quasi media ora.*

Facta est tribulatio magna. Cumque hoc populus intenderent, multi extimabant, quod iam amplius hoc seculum non staret; sed dum haec angustia contemplarent, refulsit sol et quasi tremidus in antea umbraculam fugire cepit. Ipsa vero nocte sequenti prope matutino facta est lux quasi in die. Haec signa in celo conperta, doctores in suorum monitiones dixerunt: Estote, fratres, parati; quia adimpletum est quod in evangelio Dominus dixit: cum haec signa videritis, scitote, quia prope est die Domini magnus et manifestus?

Sequenti autem mense Iunio Hludowicus imperator defunctus est*, suosque dies finivit in pace.*

Indictione tertia : 3rd year of the 35th indiction, an ecclesiastic fiscal period introduced by CONSTANTIN after victory over MAXENTIUS on 312.10.28.

In laetinias Domini refers to Rogation-Monday, -Tuesday & -Wednesday before Holy Thursday: 840.05.05 was a Wednesday !

A contemporary report: chronological order respected, total eclipse followed by the emperor's death.

Léon GAUMONT

1912.04.17 / 12:09:49 UT

Carrefour de la Grande Croix

N48.8006° / E1.9206°

8 frames published by

Bull. Soc. d'Astronomie

Jul. 1912, p.323

Click

http://www.archaeometry.org/images/gaumont1912.gif

-1337.05.14/ 12:19UT

Total Solar Eclipse : 4 minutes

10 New Moon later… **-1336.03.05**

AKHENATON ***(-1341 / -1324)***

in ryV founded his capital **AKHET-ATON**

Chronology comforted by:

SE -1311.06.24 over Hattusa

Mursili II ryX (letter to Horemheb)

25° 40' 52,1" N <-> 25,68114°						
32° 37' 45,8" E <-> 32,62939°	(éclipse partielle de soleil)					
Degré d'obscurité : 94,03%	Max	Grandeur de l'éclipse : 0,94054 Rapport Lune/Soleil : 1,07578				
Phase (ΔT=31191,1s)	Date	Heure (TU)	Alt	Azi	P	V
Début de l'éclipse partielle (C1) :	14/05/-1337	11:02:25,1	+68,3°	244,5°	260°	05,1
Maximum de l'éclipse :	14/05/-1337	12:25:29,1	+50,3°	262,6°	347°	02,6
Fin de l'éclipse partielle (C4) :	14/05/-1337	13:39:46,6	+33,6°	271,5°	073°	11,9