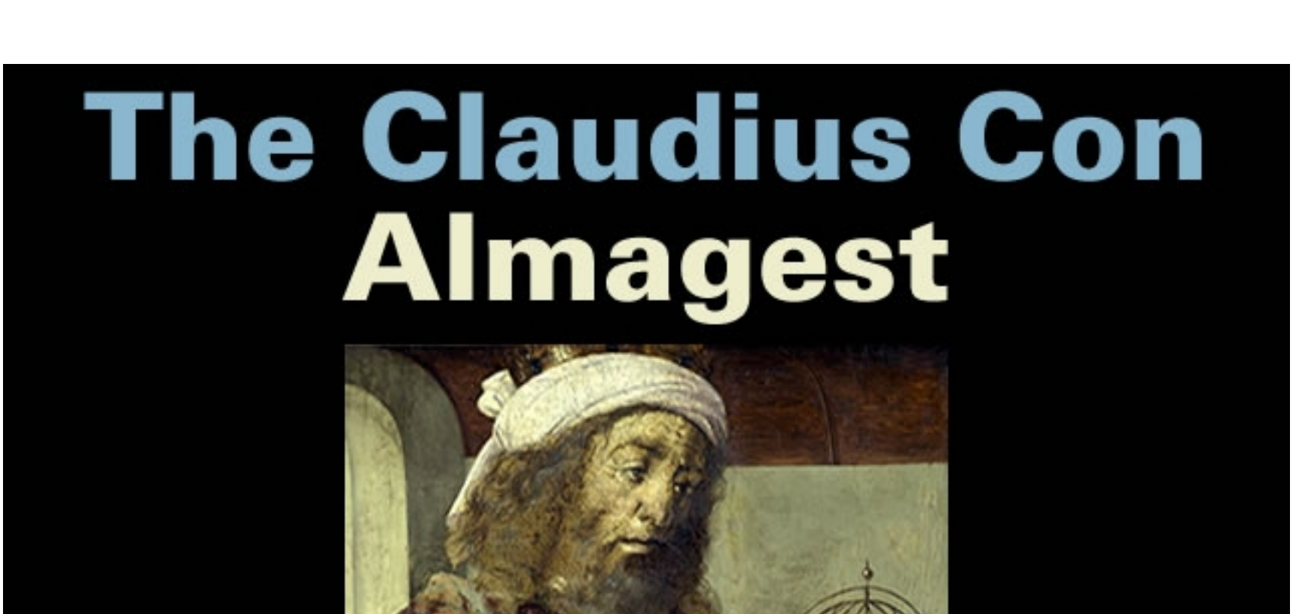


Clairvoyant portrait of Claudius Ptolemy
Justus van Gent and Pedro Berruguete - 1476 - Louvre Museum

22nd January 2024

Ptolemy's *Almagest* is a compendium of mathematical and astronomical information.

Almageſtũ Cl. Ptolemei
Pheludienſis Alexandrini Aſtronomoꝝ principis:
Opus ingens ac nobile omnes Celoꝝ̃ mo-
tus continens. Felicibus Aſtris eat in
lucē: Ductu Petri Liechtenſtein
Colonieñſis Germani. Anno
Virginei Partus. 1515.
Die. 10. Ja. Venetijs
ex officina eiuſ-
dem litte-
raria.
* * *

Almagestum - Claudius Ptolemaeus
Petrus Lichtenstein, Venice, Italy - 1515

Almagest, a great and noble work containing all the motions of the heavens.
May it go into the light under auspicious stars.

Wikipedia - Claudius Ptolemaeus, Almagestum
https://en.wikipedia.org/w/index.php?title=File:Claudius_Ptolemaeus,_Almagestum,_1515.djvu&page=2

Almagestum - 1515
https://web.archive.org/web/20120330153711/http://www.univie.ac.at/hwastro/rare/1515_ptolemae.htm

The Almagest contains 13 books, about 1000 pages in total volume (in modem editions).

The first book contains basic concepts and constructions, of which the following should be mentioned:

1) The firmament is spherical, and rotates like a sphere;
2) The earth is a sphere, disposed at the center of the universe;
3) The earth can be considered as a point in comparison with the distances to the sphere of fixed stars;
4) The earth does not alter its position in space (does not move).

As Ptolemy notes, these principles are based on the conclusions of Aristotle's philosophy.

Further, the first and the second books contain an exposition of elements of spherical astronomy (theorems on spherical triangles, a method for calculating arcs (angles) from the lengths of their spans, etc.).

The third book presents a theoiy of visible solar motion and a discussion of the dates of equinoxes, the length of the year, etc.

The fourth book treats the length of the synodic month and the theory of lunar motion.

The fifth book is devoted to the construction of some astronomic instruments and to a further development of the theory of the moon.

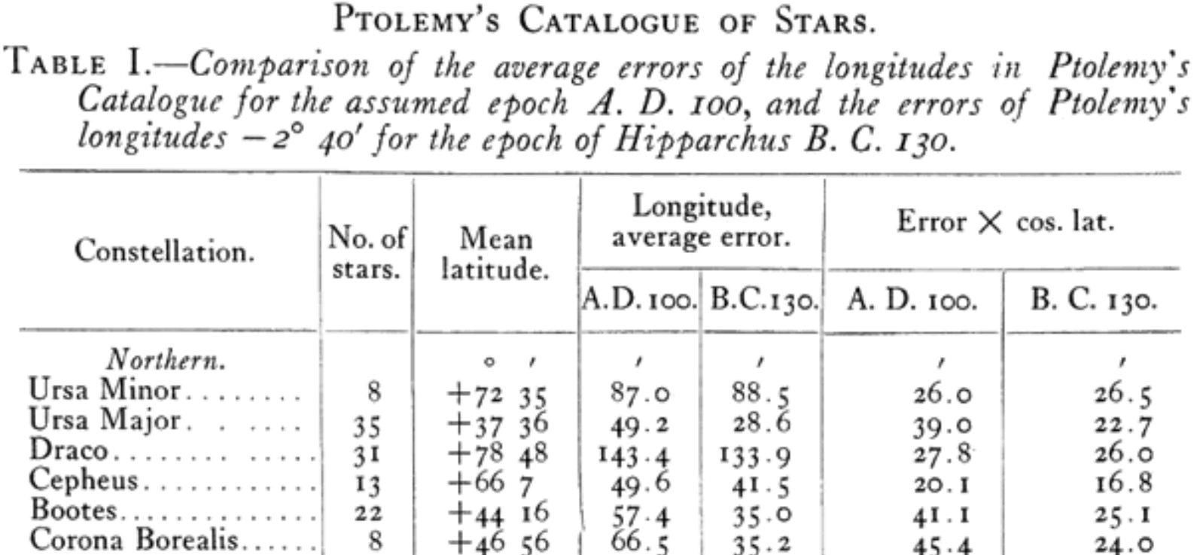
The sixth book exposes a theory of solar and lunar eclipses.

The famous star catalog (comprising more than 1000 stars) is contained in the seventh and eighth books of the Almagest. The books contain the catalog and a discussion of properties of fixed stars, of motion of the celestial sphere, etc.

The last five books of the Almagest are devoted to the theory of motion of planets (Ptolemy considers five planets, Saturn, Jupiter, Mars, Venus and Mercury).

Dating Ptolemy's Almagest - 1993
A T Fomenko, V V Kalashnikov, and G V Nosovsky
https://archive.org/details/AnatolyFomenkoBooks/DatingPtolemysAlmagestByAnatolyFomenko/page/n10/mode/1up?view=theater
Amazon US: https://www.amazon.com/dp/0849344832
Amazon UK: https://www.amazon.co.uk/dp/0849344832

The modern mainstream particularly enjoys finding ***errors*** in the ***Almagest* star catalogue.**



PTOLEMY'S CATALOGUE OF STARS.

TABLE I.—*Comparison of the average errors of the longitudes in Ptolemy's Catalogue for the assumed epoch A. D. 100, and the errors of Ptolemy's longitudes − 2° 40′ for the epoch of Hipparchus B. C. 130.*

Constellation.	No. of stars.	Mean latitude.	Longitude, average error.		Error × cos. lat.	
			A.D. 100.	B.C. 130.	A. D. 100.	B. C. 130.
Northern.		° ′	′	′	′	′
Ursa Minor	8	+72 35	87.0	88.5	26.0	26.5
Ursa Major	35	+37 36	49.2	28.6	39.0	22.7
Draco	31	+78 48	143.4	133.9	27.8	26.0
Cepheus	13	+66 7	49.6	41.5	20.1	16.8
Bootes	22	+44 16	57.4	35.0	41.1	25.1
Corona Borealis	8	+46 56	66.5	35.2	45.4	24.0
Hercules	27	+56 41	76.5	51.8	42.0	28.4
Lyra	10	+58 42	97.1	69.1	50.4	35.9
Cygnus	16	+57 8	23.3	20.0	12.6	10.8
Cassiopeia	11	+48 7	67.8	39.1	45.2	26.1
Perseus	27	+25 14	43.3	18.1	39.2	16.4
Auriga	10	+18 38	33.2	11.0	31.5	10.4
Ophiuchus	27	+14 11	57.0	27.7	55.3	26.8
Serpens	14	+24 36	56.5	36.0	51.4	32.7
Sagitta	5	+38 56	53.4	34.0	41.5	26.4
Aquila	12	+26 20	57.5	36.1	51.5	32.3
Delphinus	8	+30 45	27.2	21.2	23.4	18.2
Equuleus	4	+23 2	40.5	14.0	37.3	12.9
Pegasus	20	+25 2	35.9	19.0	32.5	17.2
Andromeda	23	+31 21	26.0	20.7	22.2	17.7
Triangulum	4	+18 51	18.2	27.7	17.2	26.2
	335				Mean 36.65	Mean 22.87

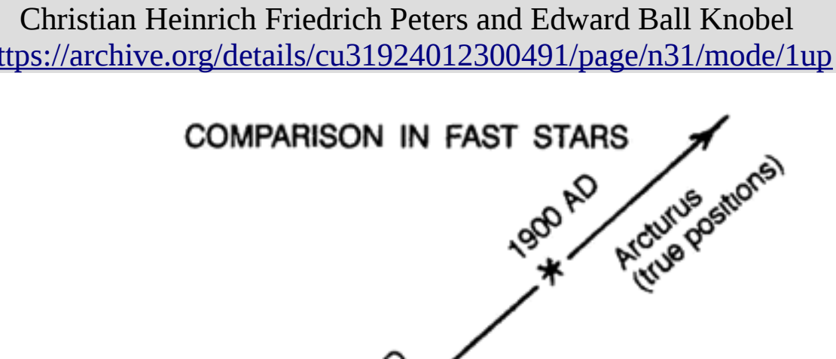
Ptolemy's Catalogue of Stars: A revision of the Almagest - 1915
Christian Heinrich Friedrich Peters and Edward Ball Knobel

It may be safely asserted that no correct copy of Ptolemy's original catalogue exists in any manuscript, and where all codices contain so many errors it is difficult to say which copy is the most reliable.

The centuries that elapsed between Ptolemy's period and the oldest manuscripts known have resulted in **numerous errors in the longitudes and latitudes of the stars**, due to the scribe, who was either careless or ignorant of what he was writing.

Errors in the description of the stars would be very rare, as the scribe would understand the words, but in copying the letters signifying the figures of longitude and latitude he would have nothing whatever to guide him as to their correctness.

Ptolemy's Catalogue of Stars: A revision of the Almagest - 1915
Christian Heinrich Friedrich Peters and Edward Ball Knobel
https://archive.org/details/cu31924012300491/page/n31/mode/1up

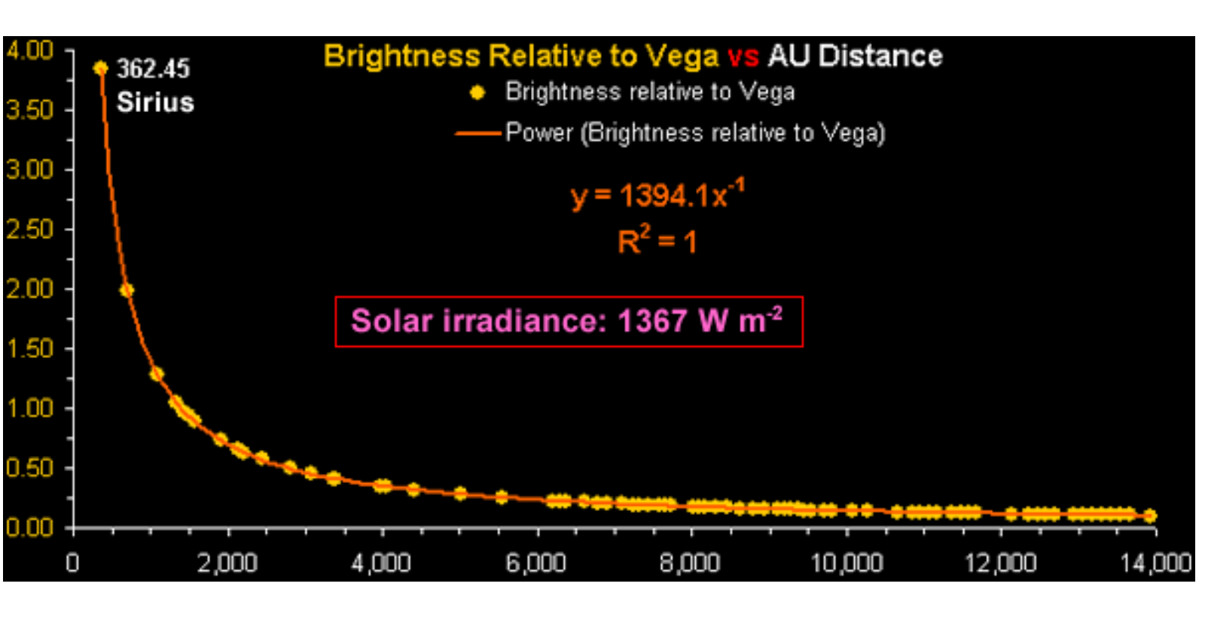


The true motion trajectory of Arcturus compared to its *Almagest* position
The dashed line depicts the 10' neighborhood of the position in *Almagest*
Dating Ptolemys Almagest - 1993
A T Fomenko, V V Kalashnikov, and G V Nosovsky

Dating Ptolemy's Almagest - 1993
A T Fomenko, V V Kalashnikov, and G V Nosovsky
https://archive.org/details/AnatolyFomenkoBooks/DatingPtolemysAlmagestByAnatolyFomenko/page/n63/mode/1up?q=procyon&view=theater

As usual:

The modern mainstream **hasn't** paused to ponder whether these ***errors*** are their mistakes caused by their fervent belief in **Uniformitarianism,** their unquestioning acceptance of the **Julian Calendar,** or any of the other asinine assumptions afflicting *astronomy.*



A simple proportional calibration of the entire Brightness Relative To Vega proxy curve suggests **Sirius is [only] at a distance of 362.45 AU** i.e. 0.0057312 light years.

Malaga Bay - Parallax Perspective
https://malagabay.wordpress.com/2020/01/09/parallax-perspective/

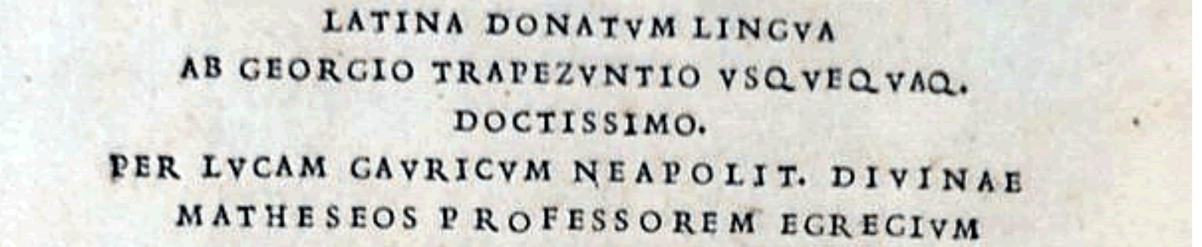
The fluctuating pitch [or colour] has **nothing** to do with the ***Doppler Effect*** and everything to do with **attenuation** of high frequency sound waves [or light waves].

Malaga Bay - The Soporific Sound of Settled Science
https://malagabay.wordpress.com/2015/06/04/the-soporific-sound-of-settled-science/

And, as is usual for important source manuscripts, the mainstream **hasn't** bothered to critically examine the provenance of **Ptolemy's** ***Greek Almagest.***

Ptolemy's particularly poor provenance proclaims:

- The ***Arabic Almagest*** is said to have appeared in Spain before or during the 12th century.
- The **Arabic *Almagest*** is said to have been translated into **Latin** in the 12th century.
- The **Greek *Almagest*** is said to have materialised in Europe during the 15th century.
- The **Greek *Almagest*** [of uncertain origin] was first published in Europe in the 16th century**.**



CLAVDII PTOLEMAEI
PHELVDIENSIS ALEXANDRINI
ALMAGESTVM SEV MAGNAE CONSTRVCTIONIS
MATHEMATICAE OPVS PLANE DIVINVM
LATINA DONATVM LINGVA
AB GEORGIO TRAPEZVNTIO VSQVEQVAQ.
DOCTISSIMO.
PER LVCAM GAVRICVM NEAPOLIT. DIVINAE
MATHESEOS PROFESSOREM EGREGIVM
IN ALMA VRBE VENETA ORBIS REGINA
RECOGNITVM
ANNO SALVTIS M D XXVIII LABENTE

1528 copy of Ptolemy's Almagestum
Translated to Latin from Greek by George of Trebizond

The work was … titled …
Mathēmatikē Syntaxis …
Syntaxis Mathematica …
Hē Megalē Syntaxis …
The Great Treatise …
Magna Syntaxis …
al-majisṭī (المجسطي) …
Almagest …

… **Latin translation** known as Almagestum made in the **12th century from** … **Arabic**
… **Greek** copies … in the **15th century.**

Wikipedia - Almagest
https://en.wikipedia.org/wiki/Syntaxis_Mathematica

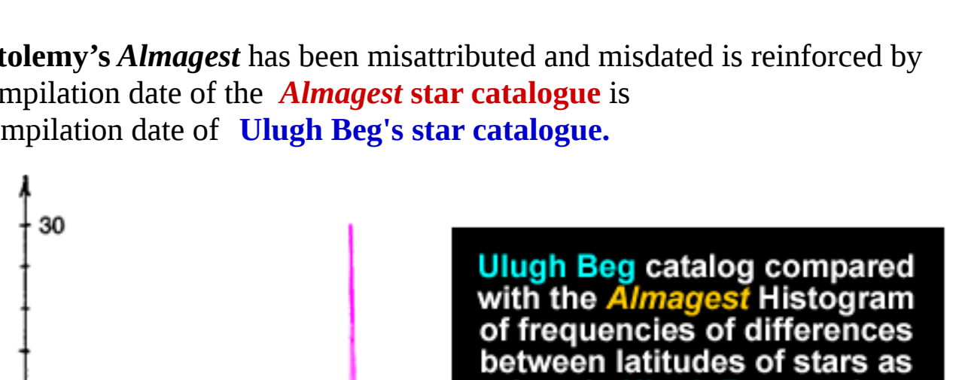
For nearly three centuries the only available edition of the **Almagest in Greek** was that **published** at Basel by Grynaeus in **1538**, but great uncertainty exists as to the manuscript he used**.** It is stated that **the manuscript** belonged to Regiomontanus, to whom it was given by Cardinal Bessarion, and that it was deposited at Nürnberg.
No Greek manuscript of the Almagest exists at Nürnberg.
…
In the year **1450 one or two Greek codices** of the Almagest had been **found in Greece** and brought to Rome. The first translation of them was made by Georgius Trapezuntius about 1460, subsequently published at Venice in 1528 …

Ptolemy's Catalogue of Stars: A revision of the Almagest - 1915
Christian Heinrich Friedrich Peters and Edward Ball Knobel
https://archive.org/details/cu31924012300491/page/n25/mode/1up

Around 1450 … Gutenberg introduced the metal movable-type printing press in Europe …

Wikipedia - Movable Type
https://en.wikipedia.org/wiki/Movable_type

The conclusion that **Ptolemy's *Almagest*** has been misattributed and misdated is reinforced by the observation the compilation date of the ***Almagest* star catalogue** is "close" to the **1437** compilation date of **Ulugh Beg's star catalogue.**



Dating Ptolemys Almagest - 1993
A T Fomenko, V V Kalashnikov, and G V Nosovsky

The geometrical dating interval for the **catalog of Ulugh Beg** is 700-1450 AD. The interval covers the traditionally accepted date of compilation of the catalog (**1437 AD**), although this date is near the upper bound of the interval. On the other hand, the interval is very close to the similar interval for the **Almagest**, so it is possible that the dates of compilation of the two catalogs are close to each other. … The accuracy characteristics of the catalog of Ulugh Beg and the catalog of the Almagest are quite similar …

Dating Ptolemy's Almagest - 1993
A T Fomenko, V V Kalashnikov, and G V Nosovsky
https://archive.org/details/AnatolyFomenkoBooks/DatingPtolemysAlmagestByAnatolyFomenko/page/n213/mode/1up?q=%22The+geometrical+dating%22

Edwin Johnson (1842–1901) was an English historian, best known for his radical criticisms of Christian historiography. … In *The Pauline Epistles* and *The Rise of English Culture* Johnson made the radical claim that the whole of the so-called Dark Ages **between 700 and 1400 A. D.** had never occurred, but had been **invented** by Christian writers who created **imaginary** characters and events.

Wikipedia - Edwin Johnson (historian)
https://en.wikipedia.org/wiki/Edwin_Johnson_(historian)

The misdating and misattribution demolishes the long and glorious history of **Greek Astronomy**.

The **Almagest** … One of the most influential scientific texts in history, it canonized a geocentric model of the Universe that was accepted **for more than 1,200 years from its origin in Hellenistic Alexandria**, in the medieval Byzantine and Islamic worlds, and in Western Europe through the Middle Ages and early Renaissance until Copernicus.
It is also a key source of information about ancient **Greek astronomy.**

Wikipedia - Almagest
https://en.wikipedia.org/wiki/Syntaxis_Mathematica

Many **Greek astronomical texts** are **known only by name**, and perhaps by a **description** or **quotations.** Some elementary works have survived because they were largely non-mathematical and suitable for use in schools. Some elementary works have survived …
The most important primary source is the *Almagest* …

Wikipedia - Ancient Greek Astronomy
https://en.wikipedia.org/wiki/Greek_astronomy

The Western appropriation of the ***Almagest*** compiled by **al-Farghānī** may [**or may not**] have been of perpetrated by the [most probably imaginary] 12th century translator ***Gerard of Cremona***.

Statue of Al-Farghani in Fergana, Uzbekistan - Wikimedia: Bgag

… **al-Farghānī** also known as Alfraganus in the West (**c. 800-870**), was an astronomer in the Abbasid court in Baghdad, and one of the most famous astronomers in the 9th century.
His best known work, Kitāb fī Jawāmiʿ ʿIlm al-Nujūmi (whose name translates to **Elements of astronomy on the celestial motions**), was **an extensive summary of Ptolemy's Almagest** containing revised and more accurate experimental data. …
Elements of astronomy … written sometime between about 833 and 857 …
translated into **Latin …** by John of Seville in 1135 and by Gerard of Cremona prior to 1175.

Wikipedia - Al-Farghani
https://en.wikipedia.org/wiki/Alfraganus

John of Seville (fl. 1133-53) was one of the main translators from Arabic into Castilian …
John of Seville translated **Al-Farghani's Kitab Usul 'ilm al-nujum** ("Book on the Elements of the Science of Astronomy") **into Latin in 1135** under the revised title of The Rudiments of Astronomy …

Wikipedia - John of Seville
https://en.wikipedia.org/wiki/John_of_Seville

Gerard of Cremona (c. 1114–1187), the medieval translator …
His most celebrated work is the **Latin version** by which alone **Ptolemy's *Almagest*** was known to Europe until the discovery of the original *Μεγάλη Σύνταξις*.
In addition … he translated … **Al Farghani's *Elements of Astronomy*** …

Gerard of Cremona - Charles Raymond Beazley
1911 Encyclopædia Britannica - Volume 11
https://en.wikisource.org/wiki/1911_Encyclop%C3%A6dia_Britannica/Gerard_of_Cremona

Gerard of Cremona (c. 1114-1187) was an Italian translator of scientific books from Arabic into Latin. He worked in Toledo … and obtained the Arabic books in the libraries at Toledo.

Wikipedia - Gerard of Cremona
https://en.wikipedia.org/wiki/Gerard_of_Cremona

Confusingly, there appear to have been **two translators** of Arabic text into Latin **known as Gerard of Cremona.** The first was active in the **12th century** and concentrated on astronomy and other scientific works, while the second was active in the **13th century** and concentrated on medical works.

Wikipedia - Gerard of Cremona
https://en.wikipedia.org/wiki/Gerard_of_Cremona

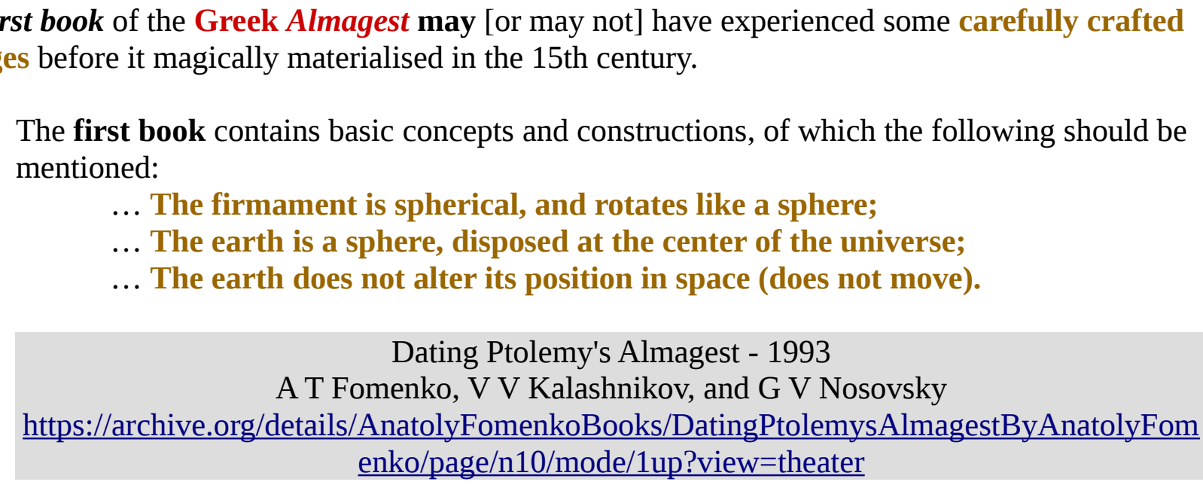
Furthermore:

The ***first book*** of the **Greek *Almagest*** **may** [or may not] have experienced some **carefully crafted changes** before it magically materialised in the 15th century.

The **first book** contains basic concepts and constructions, of which the following should be mentioned:
… **The firmament is spherical, and rotates like a sphere;**
… **The earth is a sphere, disposed at the center of the universe;**
… **The earth does not alter its position in space (does not move).**

Dating Ptolemy's Almagest - 1993
A T Fomenko, V V Kalashnikov, and G V Nosovsky
https://archive.org/details/AnatolyFomenkoBooks/DatingPtolemysAlmagestByAnatolyFomenko/page/n10/mode/1up?view=theater

Carefully crafted changes that **may** [or may not] have been translated from the **Greek *Almagest*** into the ***Latin Almagestum*** by George of Trebizond and published posthumously in **1528**.



SAC RE PERSPECTA, ſiquis deinceps de ſitu terræ certius dicere uelit ſic profecto quæ iuxta ipſam apparent, accidere ſolummodo intelliget, ſi tam in medio cœli quaſi ſphæræ centrum poſuerit. Nam ſi hic ſe res non habeat, aut oportebit quod ipſa ſit extra axem & equaliter ab utroq; polorum diſtet: aut in axe, ita ut ad unum polorum magis accedat, aut nec in axe neq; ab utroq; polorum æqualiter diſtet. Ad primum igitur ex his tribus ſitum, illa maxime pugnant. Nam ſi ſurſum aut deorſum extra axem intelligatur, accidet ut quum i duo ſemper inequalia quod ſupra terrã & quod ſub terra ẽ ab horizonte diſſeperentur, nũquã in recta ſphæra equinoctiũ fiat. In obliqua uero ſphæra uel nũquã, uel non in medio tranſitu ab altero ſolſtitiorum æſtiuo dico atq; hyemali ad alterum. Nam hæc ſpatia inæqualia neceſſario fierent. Non enim æquinoctialis maximuſq; parallelorum circulorum qui in polis circulationis deſcribuntur diuideretur ab horizonte in duo æqualiter. Sed unus æquidiſtantium ei uel borealium magis uel auſtralium. Sed apud omnes ſimpliciter conſtat hæc ſpatia æqualia eſſe ubiq;: quũ & diei ab æquinoctio incrementa donec ad maximum diem in æſtiualibus ſolſtitiis perueniatur æqualia ſunt dierum decrementis ad minimum uſq; ſolſtitiorum hyemalium diem. ¶ Si uero ad ortum uel occaſum ideſt ad aliquorũ partes rurſus accedere ſupponatur: Nec magnitudines & ſpatia ſtellarum ſm orientalẽ & occidentalem, horizonta æqualia eademq; eiſdem erunt, nec ab ortu ad meridiem tempus æquale illi erit tempori quod a meridie ad occaſum eſt: quæ omnia iis quæ apparent omnino repugnant. ¶ Ad ſecundam autem opinionem qua ſic in axe ponitur ut ad alterum polorum magis accedere intelligatur. Ita rurſus quiſpiam reſponderet: quia ſi ſic res ſe haberet, & in ſingulis climatibus, horizontis ſuperficies cœli partes duas quæ ſuper terram & quæ ſub terra eſt ſm alium atq; aliũ acceſſum & ad ſeipſas & ad inuicem ſemper inæquales differenter efficeret: nec niſi in recta ſolũmodo ſphæra in duas æquales poſſet ſeparare. In obliquatione autem quæ propinquiorem polum ſemper facit manifeſtum partem (quæ ſuper terrã eſt) ſemper minueret: & ſub terram omnia augeret. Vnde accideret ut maximus quoq;

Book One - Almagestum - 1528
Translator: George of Trebizond Editor: Luca Gaurico

Book One - Almagestum - 1528
Translator: George of Trebizond - Editor: Luca Gaurico
https://archive.org/details/ARes14313/page/n19/mode/1up

George of Trebizond (1395–1486) was a Byzantine Greek philosopher, scholar, and humanist. … When he went to Italy is not certain; according to some accounts he was summoned to Venice about 1430 … according to others he did not visit Italy until the time of the Council of Florence (1438–1439).

Wikipedia - George of Trebizond
https://en.wikipedia.org/wiki/George_of_trebizond

Luca Gaurico (in Latin, Lucas Gauricus) (1475-1558) was an Italian astrologer, astronomer, astrological data collector, and mathematician. … Gaurico **edited George of Trebizon's translation of Ptolemy's Almagest**, **a work Gaurico dedicated to Pope Nicholas V, who had commissioned the work.**

Wikipedia - Luca Gaurico
https://en.wikipedia.org/wiki/Luca_Gaurico

Carefully crafted changes that **may** [or may not] have been published in Latin during **1528**
and subsequently echoed in the first publication of the Greek *Almagest* in Basel during **1538**
as the necessary fraudulent foundations of the **appropriated *Copernican Revolution*** of **1543**.

Nicolaus Copernicus (1473-**1543**) was a Renaissance polymath, active as a mathematician, astronomer, and Catholic canon, who formulated a model of the universe that placed the Sun rather than Earth at its center. … The **publication of Copernicus's model in** … **1543**, was a major event in the history of science, triggering the Copernican Revolution and making a pioneering contribution to the Scientific Revolution.

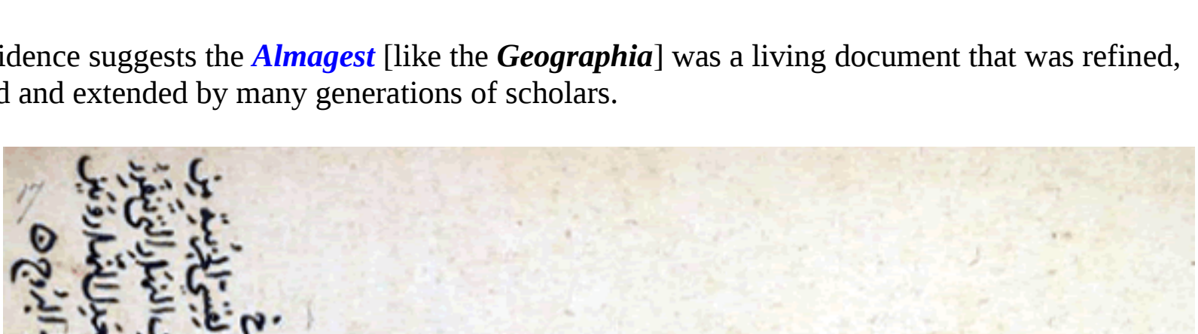
Wikipedia - Nicolaus Copernicus
https://en.wikipedia.org/wiki/Copernicus

The **Copernican Revolution** was the paradigm shift from the Ptolemaic model of the heavens, which described the cosmos as having Earth stationary at the center of the universe, to the heliocentric model with the Sun at the center of the Solar System.

Wikipedia - Copernican Revolution
https://en.wikipedia.org/wiki/Copernican_Revolution

Either way:

The evidence suggests the ***Almagest*** [like the ***Geographia***] was a living document that was refined, updated and extended by many generations of scholars.

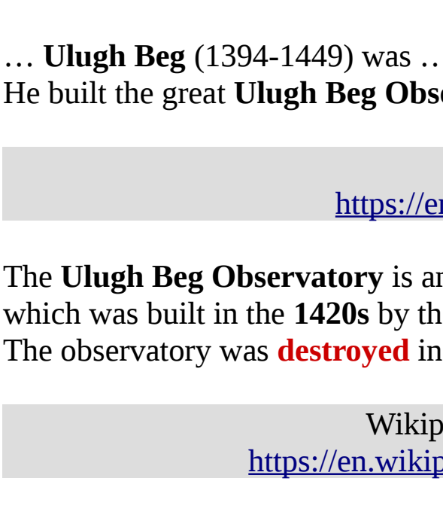


Books One to Six of the Almagest, an Arabic version … thought to have been translated by al-Ḥajjāj ibn Yūsuf ibn Maṭar (786-830).

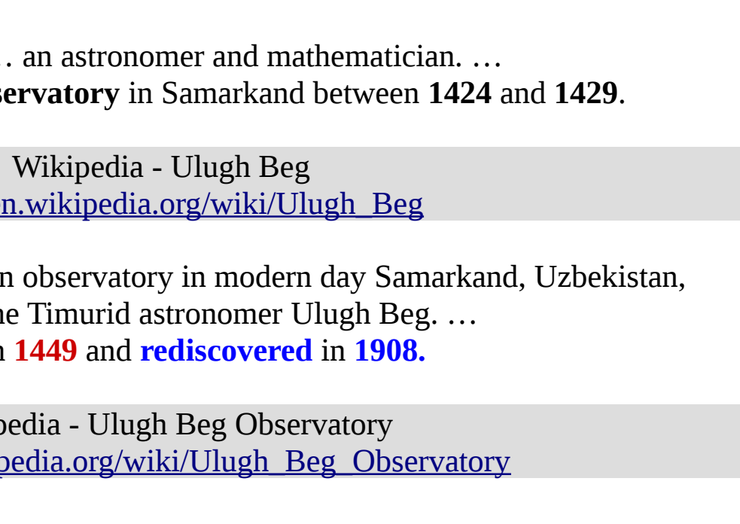
Kitāb al-Majisṭī
Arabic Scientific Manuscripts of the British Library
https://www.fromthepage.com/bldigital/arabic-scientific-manuscripts/add-ms-7474-6308f07e-5248-4584-aa5b-372430968cb6

al-Būzjānī (940-998) was a **Persian mathematician and astronomer** … in Baghdad.
…
His Almagest was widely read by medieval Arabic astronomers in the centuries after his death. He is known to have written several other books that have not survived.
…
It has been suggested that he was **influenced by** the works of **al-Battani** [before 858-929] as the latter described a quadrant instrument in his *Kitāb az-Zīj*.
…
While what is extant from his works lacks theoretical innovation, **his observational data** were **used by** many later astronomers, including **al-Biruni** [973-after 1050].
…
Among his works on astronomy, only the first seven treatises of his **Almagest (Kitāb al-Majisṭī)** are now extant. The work covers numerous topics in the fields of plane and spherical trigonometry, planetary theory, and solutions to determine the direction of Qibla.

Wikipedia - Abu al-Wafa' al-Buzjani
https://en.wikipedia.org/wiki/Ab%C5%AB_al-Waf%C4%81%27_B%C5%ABzj%C4%81n%C4%AB



The trench with the lower section of the meridian arc
Wikimedia: Igor Pinigin



Ulugh Beg's Astronomic Observatory
Unearthed by V Vyatkin in an 1908 archaeological dig
Wikimedia: Sigismund von Dobschütz

Malaga Bay - The Dodwell Dead End
https://malagabay.wordpress.com/2019/09/23/the-dodwell-dead-end/

… **Ulugh Beg** (1394-1449) was … an astronomer and mathematician. …
He built the great **Ulugh Beg Observatory** in Samarkand between **1424** and **1429**.

Wikipedia - Ulugh Beg
https://en.wikipedia.org/wiki/Ulugh_Beg

The **Ulugh Beg Observatory** is an observatory in modern day Samarkand, Uzbekistan, which was built in the **1420s** by the Timurid astronomer Ulugh Beg. …
The observatory was **destroyed** in **1449** and **rediscovered** in **1908.**

Wikipedia - Ulugh Beg Observatory
https://en.wikipedia.org/wiki/Ulugh_Beg_Observatory

As always:

Review the evidence and draw your own **Claudius Con** conclusions.