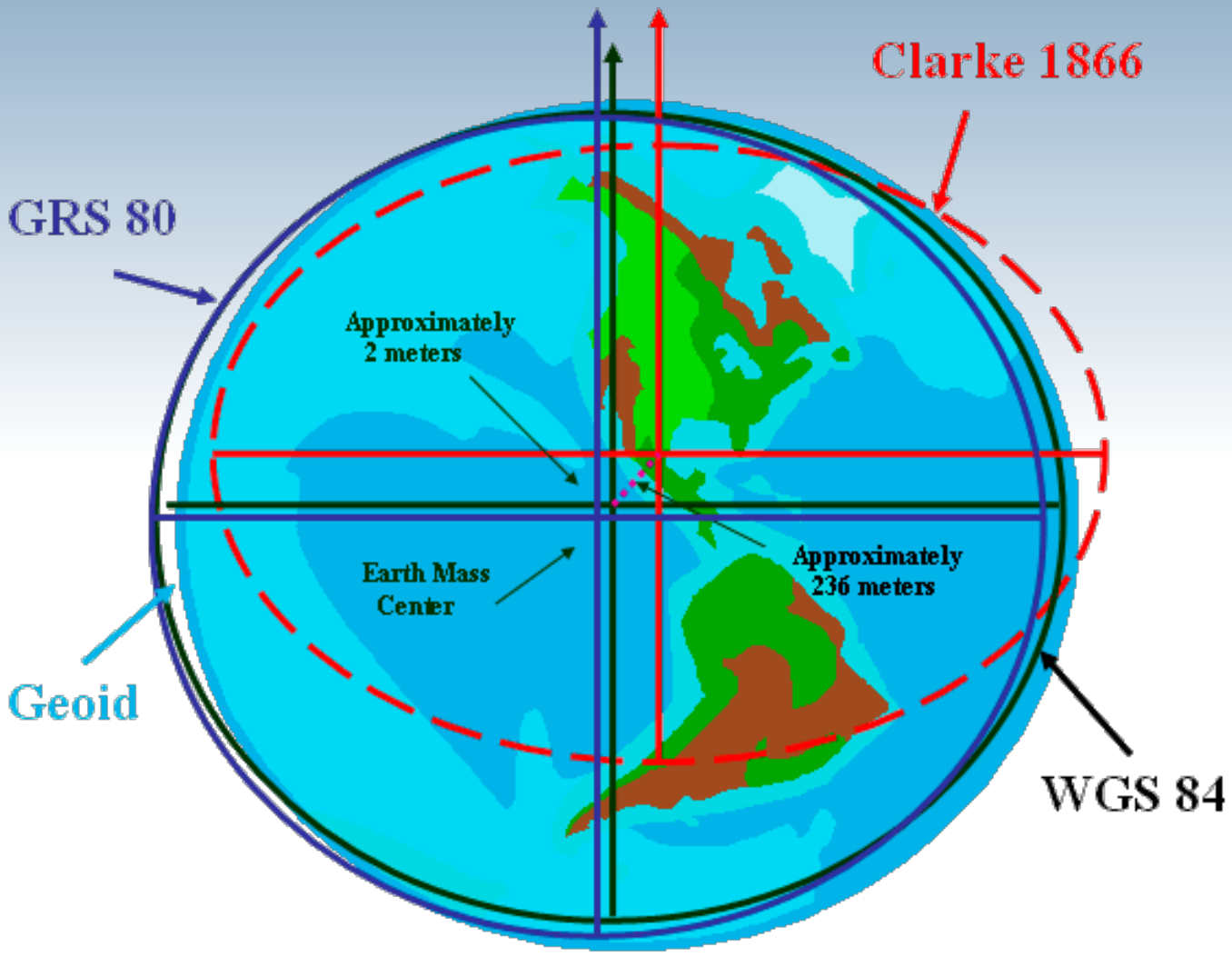
JAN KOZIAR

Expansion of the World Geodetic Ellipsoid



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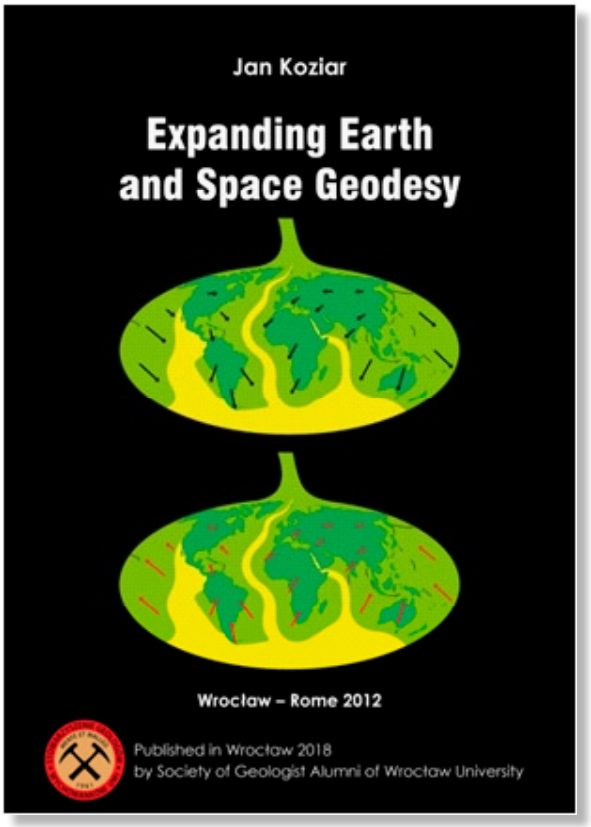
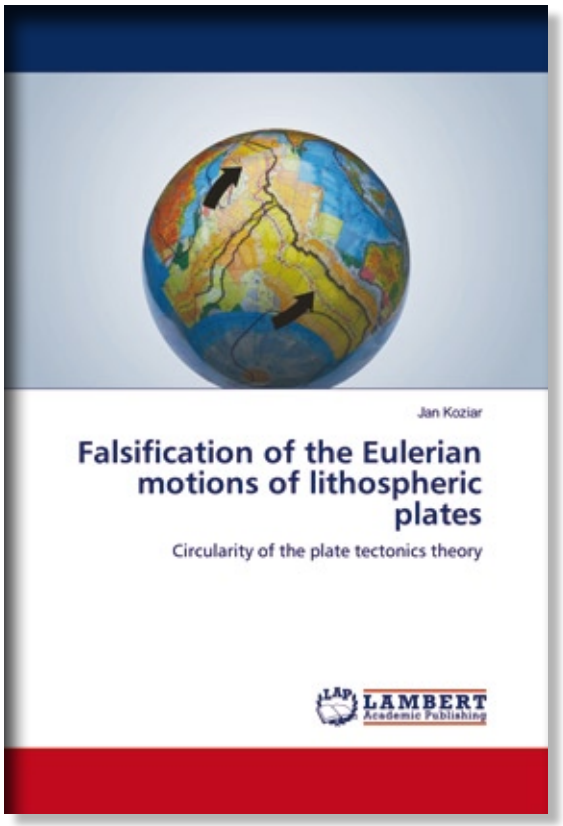
Introduction

The paper ***Expansion of the world geodetic ellipsoid*** was prepared for the journal *Nature* and submitted on 9 May 2018. However it was rejected the next day without any essential or formal arguments. Thus I decided to published it on the Internet. The original editorial requirements for *Nature* are preserved. Included at the end of the paper is my cover letter to the editor. *[16 May 2018]*.

The problem presented here was exactly discussed in my book ***Expanding Earth and Space Geodesy*** published on 24 March 2018, by the Society of Geologist Alumni of Wrocław University. Then the present paper, rejected by the Nature, was published as a supplement in my other book ***Falsification of the Eulerian motions of lithospheric plates: Circularity of the plate tectonics theory*** on 28 June 2018, by the Lambert Academic Publishing.





www.wrocgeolab.pl/geodesy2.pdf www.wrocgeolab.pl/falsification_LAP.pdf

2 July 2018

J. Koziar

Expansion of the world geodetic ellipsoid

Jan Koziar*

This paper presents one aspect of my more comprehensive publication *Expanding Earth and space geodesy*[1], which shows that expansion of the Earth emerges from space geodesic measurements and calculations in manifold ways. Among others the major semi-axis of the world geodetic ellipsoid of WGS-84 has successively increased since the first exact calculation in 1989 up to the last such calculation in 2003. However the last result is treated by space geodesists as only the best approximation of a constant parameter. After a lapse of the subsequent 14 years the major semi axis should be about 30 cm longer. Thus the calculations of its length should be repeated again.

At the time of establishment of the world geodetic ellipsoid of WGS-84, the length of its equatorial semi-axis was assessed (after GRS-80 ellipsoid) as 6 378 137 ± 2 meters. In 1989, the value was reduced by better estimation to 6 378 136 meters[2]. Then, based on the increasing accuracy of measurements, the series of precise calculations began. They achieved an accuracy of 1 decimeter and began to record a gradual increase in the length of the major semi-axis. Thus:

1992 – 6 378 136. 3 meters[3]

1996 – 6 378 136. 49 ± 0.1 meters[4]

2003 – 6 378 136. 6 ± 0.1 meters[5]

The increment in the precisely measured length of the major semi-axis between 1992 and 2003 is 30 cm. The treatment of the increment as a manifestation of the Earth's expansion gives an average value of the rate of increase in the Earth radius of 2.72 cm/year. This value is compatible with many other similar values obtained from geological (Table I) and space geodetic (Table II) methods[6,7,1]. Table II, published in two older papers, did not include the value resulting from the increase in the world geodetic ellipsoid. The description of all the methods is in the paper[1].

The values in the tables suggest that the real rate of the Earth's radius increase lies in the range 2.0 - 2.5 cm/year. Today, after a lapse of 14 years

since the last calculation, the equatorial semi-axis of the world geodetic ellipsoid should be about 30 cm (rounded to decimeters) longer than in 2003. Thus it should be about 6 378 136. 9 meters. This predicted increment for the period 2003–2017 is three times as much as the achieved precision of the measurements.

Table I. Present rates of the growth of the Earth's radius obtained by geological methods

Author	Year	Rate [cm/yr]	Method
Koziar[8]	1980	2.59	Increase in the Earth's surface area (Phanerozoic)
Blinov [9,a]	1983	1.99	Present annual increase in the surface area of oceanic lithosphere
Blinov [9,b]	1983	>1.91	Present annual increase in the Earth's circumference
Blinov[10,c]	1987	≅ 2.0	Increase in the Earth's surface area (Cenozoic)
Osipishin & Blinov[11]	1987	1.96	Increase in the Earth's surface area (Meso-Cainozoic)
Koziar [12,d]	1996	2.7	Present annual increase in the Earth's circumference
Maxlow [13,e]	2002	2.2	Increase in the Earth's surface area (from the Archean)
Koziar[6]	2011	>2.0	Ratio of the lengths of Atlantic Ridge and its African parent margin

[a] correct interpretation of the result obtained by Steiner (1977)[14]
[b] correct interpretation of the result obtained by Kulon (1973)[15]
[c] correct interpretation of the result obtained by Blinov *et al.* (1984)[16]
[d] correct interpretation of the result obtained by Le Pichon (1968)[17]
[e] Maxlow (2005) – book written and accessible in 2002 but published in 2005

Table II. Present rates of the growth of the Earth's radius obtained by space geodesic methods

Author	Year	Rate [cm/yr]	Method
Blinov [10, a]	1987	2.43	Doppler Surveying (general uplift)
Carey[18]	1988	2.08 ± 0.8	SLR (chord analysis)
Maxlow [19,b]	2000	>1.8	VLBI (general uplift)
Koziar [6,c]	2011	>1.0	VLBI (apparent baselines contraction)
Koziar [1,d]	2018	2.72	Increase in the equatorial semiaxis of global geodesic ellipsoid

[a] correct interpretation of the results published by Anderle & Malyevac (1983)[20]
[b] correct interpretation of the results obtained by Robaudo & Harrison (1993)[21]
[c] correct interpretation of the results obtained by Heki *et al*. (1989)[22]
[d] correct interpretation of the results published by McCarthy ed. (1992)[3] and McCarthy & Petit eds (2004)[5]

Expansion of the Earth is since long a real alternative to the plate tectonics paradigm (see for instance my website[23]). Thus it is crucial for both space geodesy and geology that the calculation of the length of the major semi-axis of the WGS-84 ellipsoid be repeated once again.

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Cover letter

Wroclaw, 9 May 2018

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Mr Philip Cambell

Nature's Editor-in-chief

Dear Sir,

I have been working on expanding Earth topics for many years. Please, see my website www.wrocgeolab.pl (25 items and it is not yet completed) and on ResearchGate. I also gave course lectures at Wroclaw University entitled "***Expanding Earth with basic geotectonics***" in the period 2001-2008, before retiring (see: www.wrocgeolab.pl/lectures.pdf).

My comprehensive studies show that the significant expansion of the Earth is a real process and that plate tectonics is a false theory founded on circular arguments (see: ***Falsification of the Eulerian motions of lithospheric plates*** www.wrocgeolab.pl/falsification2.pdf and ***Plate tectonics: A theory founded on circular arguments*** www.wrocgeolab.pl/falsification3.pdf). The plate tectonics flagship, subduction, is a false model, based on the false assumption that the Earth is not expanding. Instead island arcs, active continental margins and intracontinental fold belts are developing according a tensional – diapiric – gravitational mechanism (see my website).

The most embroiled topic in contemporary geotectonics is the geodynamics developed by space geodesy. This discipline pretends to confirm the plate tectonics paradigm. In fact it is based on the false assumption of the Eulerian

motions of lithospheric plates (like plate tectonics itself) and its seeming confirmation of plate tectoncics results from circular reasoning. However I demonstrate, in the book ***Expanding Earth and Space Geodesy -*** www.wrocgeolab.pl/geodesy2.pdf (the file is attached), that expansion of the Earth results from space geodesy data in manifold ways. One of them is the growing semi-axis of the world geodetic ellipsoid WGS-84. This topic is the essence of my present short text sent to you for publication.

The expansion of the Earth results from geological data unambiguously, but it requires a wide horizon of thinking and some effort to get out of the usual routes of thought, whereas the problem presented here is exceptionally simple. It is sufficient to repeat (after a 14 year gap) the calculation of the length of the equatorial semi-axis of the world geodetic ellipsoid to make the geotectonic problems clear.

With kind regards,

Jan Koziar