

# PUBLICATIONS AND PRESENTATIONS

Peter Vajda

## WOS, ISI, CC PAPERS

(24) Vajda P, Prutkin I, Tenzer R, Jentzsch G, **2012**

Inversion of temporal gravity changes by the method of local corrections: A case study from Mayon volcano, Philippines.

*Journal of Volcanology and Geothermal Research* Vol. 241–242, pp 13–20

doi: 10.1016/j.jvolgeores.2012.06.020

(1.978 IF<sub>2011</sub> 2.271 IF<sub>5year</sub>), (SCI/CC, ELSEVIER, ISSN 0377-0273, eISSN 1573-0956)

(23) Tenzer R, Gladkikh V, Novák P, Vajda P, **2012**

Spatial and Spectral Analysis of Refined Gravity Data for Modelling the Crust–Mantle Interface and Mantle-Lithosphere Structure.

*Surveys in Geophysics* 33(5): 817–839

doi: 10.1007/s10712-012-9173-3

(3.093 IF<sub>2011</sub>), (SCI/CC, Springer, ISSN 0169-3298, eISSN 1573-0956)

(22) Tenzer R, Novák P, Vajda P, Gladkikh V, Hamayun, **2012**

Spectral harmonic analysis and synthesis of Earth's crust gravity field.

*Computational Geosciences* 16(1): 193–207

doi: 10.1007/s10596-011-9264-0

(1.348 IF<sub>2011</sub>) (CC, Springer, ISSN: 1420-0597, eISSN: 1573-1499)

(21) Tenzer R., Novák P., Hamayun, Vajda P, **2012**

Spectral expressions for modelling the gravitational field of the Earth's crust density structure.

*Studia Geophysica et Geodeatica* 56(1):141–152

doi: 10.1007/s11200-011-9023-7

(0.700 IF<sub>2011</sub>), (WOS/CC), (Springer, ISSN 0039-3169, eISSN 1573-1626)

(20) Tenzer R., Hamayun, Novák P., Gladkikh V., Vajda P., **2012**.

Global crust-mantle density contrast estimated from EGM2008, DTM2008, CRUST2.0, and ICE-5G.

*Pure and Applied Geophysics* 169(9): 1663–1678

doi: 10.1007/s00024-011-0410-3

(1.787 IF<sub>2011</sub>), (CC), (Springer, ISSN 0033-4553, eISSN 1420-9136)

(19) Prutkin I., Vajda P, Tenzer R., Bielik, M., **2011**

3D inversion of gravity data by separation of sources and the method of local corrections: Kolarovo gravity high case study.

*Journal of Applied Geophysics* 75(3): 472–478,

doi: 10.1016/j.jappgeo.2011.08.012

(1.294 IF<sub>2010</sub>) (CC), (Elsevier, ISSN: 0926-9851)

(18) Tenzer R., Novák P., Vajda P, Ellmann A., Abdalla A., **2011**

Far-zone gravity field contributions corrected for the effect of topography by means of Molodensky's truncation coefficients.

*Studia Geophysica et Geodeatica*, 55(1): 55–71,

doi: 10.1007/s11200-011-0004-7,

(1.123 IF<sub>2010</sub>), (WOS/CC), (Springer, ISSN 0039-3169, eISSN 1573-1626),

- (17) Tenzer R., J. Mikuška, I. Marušiak, R. Paštka, R. Karcol, P. Vajda, P. Sirguey, **2010**  
Computation of the atmospheric gravity correction in New Zealand.  
**New Zealand Journal of Geology and Geophysics**, 53(4): 333–340  
doi: 10.1080/00288306.2010.510171  
(1.167 - IF<sub>2009</sub>), (CC, ISSN 0028-8306)
- (16) Tenzer, R., Hamayun, and P. Vajda, **2009**  
Roughness of three types of gravity disturbances and their correlation with topography in rugged mountains and flat regions.  
**Acta Geophysica**, 57(3): 657–679  
doi: 10.2478/s11600-009-0018-5  
(0.308 - IF<sub>2008</sub>), (WOS/CC, ISSN 1895-6572)
- (15) Tenzer, R., K. Hamayun, and P. Vajda, **2009**  
Global maps of the CRUST 2.0 crustal components stripped gravity disturbances.  
**Journal of Geophysical Research**, 114, B05408  
doi:10.1029/2008JB006016  
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- (14) Tenzer, R., P. Novák, I. Prutkin, A. Ellmann, P. Vajda, **2009**  
Far-zone effects in direct gravity inversion by means of Molodensky's truncation coefficients.  
**Studia Geophysica et Geodaetica**, 53(2): 157–167  
doi: 10.1007/s11200-009-0010-1  
(1.000 - IF<sub>2009</sub>), (WOS/CC, ISSN 0039-3169, eISSN 1573-1626)
- (13) Vajda, P., A. Ellmann, B. Meurers, P. Vaníček, P. Novák, and R. Tenzer, **2008**  
Gravity disturbances in regions of negative heights: A reference quasi-ellipsoid approach.  
**Studia Geophysica et Geodaetica**, 52(1): 35–52  
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- (12) Vajda, P., A. Ellmann, B. Meurers, P. Vaníček, P. Novák, and R. Tenzer, **2008**  
Global ellipsoid-referenced topographic, bathymetric and stripping corrections to gravity disturbance.  
**Studia Geophysica et Geodaetica**, 52(1): 19–34  
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- (11) Vajda, P., P. Vaníček, P. Novák, R. Tenzer, and A. Ellmann, **2007**  
Secondary indirect effects in gravity anomaly data inversion or interpretation.  
**Journal of Geophysical Research**, 112, B06411,  
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(2.80– IF<sub>2006</sub>), (WOS/CC, ISSN 0148-0227)
- (10) Vajda, P. and J. Pánisová, 2007  
An estimate of the impact of the geophysical indirect effect on interpretation of gravity with focus on the territory of Slovakia.  
**Geologica Carpathica** 58(1): 97–102  
(0.364 – IF2006), (WOS/CC, ISSN 1335–0552 print, 1336-8052 online)

- (09) Tenzer R., P. Novák, P. Moore, and P. Vajda, **2006**  
Atmospheric Effects in Derivation of Geoid-Generated Gravity Anomalies.  
*Studia Geophysica et Geodaetica*, 50(4): 583–593  
doi: 10.1007/s11200-006-0036-6
- (08) Vajda, P., P. Vaníček, and B. Meurers. **2006**  
A new physical foundation for anomalous gravity.  
*Studia Geophysica et Geodaetica*, 50(2): 189–216  
doi:10.1007/s11200-006-0012-1
- (07) Vetchfinskii V.S., I. Túnyi, and P. Vajda, **2004**.  
Effect of stress on the magnetic memory of induced magnetic anisotropy of rocks and its mathematical model.  
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*Studia Geophysica et Geodaetica*, 46(3): 469–484
- (05) Vajda, P. and P. Vaníček, **1999**  
Truncated geoid and gravity inversion for one point-mass anomaly.  
*Journal of Geodesy* 73(2): 58–66  
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*Studia Geophysica et Geodaetica*, 41(4): 329–344.
- (02) Vaníček, P., W. Sun, P. Ong, Z. Martinec, P. Vajda and B. ter Horst, **1996**  
Downward Continuation of Helmert's Gravity.  
*Journal of Geodesy*, 71(1): 21–34
- (01) Vajda P., **1992**  
Investigation of the Possibility to Determine the Palaeointensity of the Thermoremanently Magnetised Synthetic Magnetite by the Method of Anhysteretic Magnetising.  
*Studia Geophysica et Geodaetica*, 1: 51–56

## MONOGRAPH

- (1) Vetchfinski, V.S., I. Túnyi, P. Vajda, **2000**. *New Aspects of the induced magnetic anisotropy for the magnetic memory of rocks*. Polygrafia SAV Bratislava 2000, ISBN 80-85754-08-8

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- (5) Tenzer R, Hamayun, Vajda P (**2012**) Global topographically corrected and topo-density contrast stripped gravity field from EGM08 and CRUST 2.0, pp 389–399. In: Kenyon, Steve; Pacino, Maria Christina;

Marti, Urs (Eds.): Geodesy for Planet Earth: Proceedings of the 2009 IAG Symposium, Buenos Aires, Argentina, 31 August – 4 September 2009, In book series: IAG Symposia, Vol. 136, 1046 p, ISBN 978-3-642-20337-4, Springer Berlin Heidelberg, (WOS), doi: 10.1007/978-3-642-20338-1\_47

- (4) Vajda, P., P. Vaníček, P. Novák, R. Tenzer, A. Ellmann, and B. Meurers, **2010**. On ambiguities in definitions and applications of Bouguer gravity anomaly. In book: Mertikas, Stelios (Ed.) Gravity, Geoid and Earth Observation, IAG Commission 2: Gravity Field, Chania, Crete, Greece, 23–27 June 2008, pp 19–24 (538 p), book series: IAG Symposia, Vol. 135, Springer Berlin Heidelberg, ISBN 978-3-642-10633-0, DOI: 10.1007/978-3-642-10634-7 (WOS).
- (3) Vajda, P., A. Ellmann, B. Meurers , P. Vaníček, P. Novák, and R. Tenzer, **2010**. Harmonic continuation and gravimetric inversion of gravity in areas of negative geodetic heights. In book: Mertikas, Stelios (Ed.) Gravity, Geoid and Earth Observation, IAG Commission 2: Gravity Field, Chania, Crete, Greece, 23–27 June 2008, pp 25–30 (538 p), book series: IAG Symposia, Vol. 135, Springer Berlin Heidelberg, ISBN 978-3-642-10633-0, DOI: 10.1007/978-3-642-10634-7 (WOS).
- (2) Vajda, P., and L. Brimich, **2008**. On interpreting surface deformations and gravity changes for understanding volcanoes. Proceedings of the 1st WSEAS International Conference on ENVIRONMENTAL and GEOLOGICAL SCIENCE and ENGINEERING (EG'08), Malta, 11–13 September 2008, WSEAS Press, ISBN 978-960-474-001-7, ISSN 1790-5095
- (1) Tenzer, R., A. Ellmann, P. Novák, P. Vajda, **2008**. The Earth's Gravity Field Components of the Differences Between Gravity Disturbances and Gravity Anomalies, in book: Observing our changing Earth, pp 155–159, book series: IAG Symposia, ISSN 0939-9585, Vol. 133, Springer Berlin Heidelberg, ISBN 978-3-540-85425-8, doi 10.1007/978-3-540-85426-5\_18

## SCOPUS, VERSITA PAPERS

- (28) Tenzer R, Bagherbandi M, Vajda P, **2012**  
Depth-dependent density change within the continental upper mantle.  
*Contributions to Geophysics and Geodesy* 42(1): 1–13  
doi: 10.2478/v10126-012-0001-z  
(SCOPUS, Versita), (ISSN 1335-2806, eISSN 1338-0540)
- (27) Pohánka, V., Vajda, P., Bielik, M., Dérerová, J., **2011**  
Robustness analysis in forward modelling gravity data in crustal/lithospheric studies.  
*Contributions to Geophysics and Geodesy* 41(4): 279–296  
doi: 10.2478/v10126-011-0011-2  
(SCOPUS, Versita), (ISSN 1335-2806, eISSN 1338-0540)
- (26) Tenzer R, Novák P, Vajda P, **2011**  
Uniform spectral representation of the Earth's inner density structures and their gravitational field.  
*Contributions to Geophysics and Geodesy* 41(3): 191–209  
doi: 10.2478/v10126-011-0007-y  
(SCOPUS, Versita), (ISSN 1335-2806, eISSN 1338-0540)
- (25) Tenzer R, Abdalla A, P. Vajda, Hamayun, **2010**  
The spherical harmonic representation of the gravitational field quantities generated by the ice density contrast.  
*Contributions to Geophysics and Geodesy* 40(3): 207–223

- (24) Tenzer, R., P. Vajda, and Hamayun, **2010**. A mathematical model of the bathymetry-generated external gravitational field. *Contributions to Geophysics and Geodesy*, 40(1): 31–44  
doi: 10.2478/v10126-010-0002-8  
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- (22) Tenzer, R., Hamayun, and P. Vajda, **2009**. A global correlation of the step-wise consolidated crust-stripped gravity field quantities with the topography, bathymetry, and the CRUST 2.0 Moho boundary. *Contributions to Geophysics and Geodesy*. 39(2): 133–147  
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- (21) Tenzer, R., Hamayun, and P. Vajda, **2009**. Global maps of the step-wise topography corrected and crustal components stripped geoids using the CRUST 2.0 model. *Contributions to Geophysics and Geodesy*. 39(1): 1–18  
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- (20) Tenzer, R., Hamayun, and P. Vajda, **2008**. Global map of the gravity anomaly corrected for complete effects of the topography, and of density contrasts of global ocean, ice, and sediments. *Contr. Geophys. Geod.*, Vol. 38/4, 357–370, (SCOPUS)
- (19) Tenzer, R., Hamayun, and P. Vajda, **2008**. Global secondary indirect effects of topography, bathymetry, ice and sediments. *Contr. Geophys. Geod.*, Vol. 38/2, 209–216, (SCOPUS)
- (18) Vajda, P., and P. Vaníček, **2008**. Truncation Filtering Methodology: Input gravity data and pattern matching. *Contr. Geophys. Geod.*, Vol. 38/2, 169–185, (SCOPUS)
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## PROCEEDINGS, REPORTS, THESES, AND OTHER

Tenzer, R., A. Ellmann, P. Novák, P. Vajda, **2007**. The Earth's gravity field components of the differences between gravity disturbances and gravity anomalies. Proceedings, XXIV IUGG General Assembly, July 2–13, 2007, Perugia, Italy

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Vajda, P., **1995**. *Truncated Geoid and the Gravimetric Inverse Problem.*, Ph.D. dissertation. Department of Geodesy and Geomatics Engineering, University of New Brunswick, Fredericton, Canada

Vaníček, P., A. Kleusberg, Z. Martinec, W. Sun, P. Ong, M. Najafi, P. Vajda, L. Harrie, Tomášek and B. ter Horst, **1995**. Compilation of a Precise Regional Geoid. Technical Report No. 184, Department of Geodesy and Geomatics Engineering, University of New Brunswick, Fredericton, N.B., Canada.

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## Conference Presentations

- (30) Nováka P., Tenzer, R., Vajda P., **(2012)**. Spectral representations of Earth inner density structures and gravity field. EGU General Assembly 2012, session G1.1 (poster, abstract EGU2012-10024)
- (29) Prutkin I., Vajda P. **(2011)** On interpreting temporal gravity changes at volcanoes by 3D inversion based on the method of local corrections. Annual workshop 2011 of the Working Group "Volcano Seismology" of the European Seismological Commission: "S.O.S.: Seismic and Other Signals", September 17–24, 2011, Salina, Aeolian Islands, Italy (oral presentation)
- (28) Tenzer R, Hamayun, Novák P, Gladkikh V, Vajda P **(2011)** The crust-mantle density contrast estimated based on EGM2008, DTM2008, CRUST2.0 and ICE-5G. Session G4.2/GD1.5: Geodynamics - Gravity modelling for understanding of the solid Earth structure and geodynamical processes, EGU General Assembly, April 3–8, 2011, Vienna, Austria (poster)
- (27) Tenzer R, Novák P, Abdalla A, Vajda P, Ellmann A **(2011)** A spectral modelling of the gravitational contribution of the far-zone topography. Session G1.1: Geodetic Theory - Recent Developments in Geodetic Theory, EGU General Assembly, April 3–8, 2011, Vienna, Austria (poster)

- (26) Mikuška, J., Marušiak, I., Karcol, R., Pašteka, R., Tenzer, R., Vajda, P., Novák, P., **2010**: The modeling of the atmospheric gravity correction using a new analytical integration approach. European Geosciences Union, General Assembly 2010, Vienna, Austria, May 2–7, 2010. (poster)
- (25) Tenzer, R., Hamayun, and P. Vajda, **2009**. Global maps of crustal components stripped gravity. 3rd Workshop on ‘Deformation and Gravity Change: Indicators of Isostasy, Tectonics, Volcanism and Climate Change’, Casa de los Volcanes, Lanzarote, Canary Islands, Spain, February 23–26, 2009, (oral)
- (24) Tenzer, R., Hamayun, P. Vajda, and P. Novák, **2009**. A smoothing effect of the topographical correction on gravity disturbances in rugged mountains and flat regions – Case study for the Canadian Rocky Mountains. 6<sup>th</sup> EGU General Assembly, Vienna, Austria, 19–24 April, 2009, (poster)
- (23) Tenzer, R., Hamayun, P. Vajda, and P. Novák, **2009**. Global modeling of the ice stripping correction in terms of the ice thickness spherical functions. 6<sup>th</sup> EGU General Assembly, Vienna, Austria, 19–24 April, 2009, (poster)
- (22) Tenzer, R., Hamayun, P. Vajda, and R. Riva, **2008**. Global map of the ice and sediment stripped BT gravity disturbances. AGU Fall Meeting, 15–19 December 2008, San Francisco, California, USA (poster)
- (21) Vajda P., and L. Brimich, **2008**. On interpreting surface deformations and gravity changes for understanding volcanoes. The 1<sup>st</sup> WSEAS International Conference on ENVIRONMENTAL and GEOLOGICAL SCIENCE and ENGINEERING (EG'08), Malta, 11–13 September 2008 (oral)
- (20) Vajda, P., P. Vaníček, P. Novák, R. Tenzer, A. Ellmann, and B. Meurers, **2008**. On ambiguities in definitions and applications of Bouguer gravity anomaly. IAG International Symposium on Gravity, Geoid and Earth Observation, 23–27 June 2008, Chania, Crete, Greece. (poster)
- (19) Vajda, P., A. Ellmann, B. Meurers , P. Vaníček, P. Novák, and R. Tenzer, **2008**. Harmonic continuation and gravimetric inversion of gravity in areas of negative geodetic heights. IAG International Symposium on Gravity, Geoid and Earth Observation, 23–27 June 2008, Chania, Crete, Greece. (poster)
- (18) Vajda P., A. Ellmann, B. Meurers, P. Vaníček, P. Novák, R. Tenzer, **2007**. On a refined global topographic correction to gravity disturbances. XXIV IUGG General Assembly, July 2–13, 2007, Perugia, Italy, (oral)
- (17) Tenzer, R., A. Ellmann, P. Novák, P. Vajda, P. Vaníček, P. Moore, **2007**. The Earth’s gravity field components of the differences between gravity disturbances and gravity anomalies. XXIV IUGG General Assembly, July 2–13, 2007, Perugia, Italy, (poster)
- (16) Pánisová J. and P. Vajda. Analysis of synthetic TFM patterns for salt domes, **2007**. XXIV IUGG General Assembly, July 2–13, 2007, Perugia, Italy (poster)
- (15) Tenzer, R., P. Novák, A. Ellmann, and P. Vajda, **2006**. Far-zone effects in gravimetric geoid modelling by means of the surface truncation coefficients. 1st International Symposium of The International Gravity Field Service, August 28 – September 1, 2006, Istanbul, Turkey, (poster)
- (14) Vajda, P., P. Vaníček, P. Novák, R. Tenzer and A. Ellmann, **2006**. Secondary indirect effects in gravimetry. 2-nd Workshop on International Gravity Field Research, Smolenice castle, Slovak Republic, May 8–9, 2006, (oral)

- (13) Vajda, P., P. Vaníček and B. Meurers, **2006**. On the relation between anomalous gravity and the attraction of earth's subsurface anomalous density. 2-nd Workshop on International Gravity Field Research, Smolenice castle, Slovak Republic, May 8–9, 2006, (oral)
- (12) Tenzer R., P. Novák, P. Moore, and P. Vajda, **2006**. Effect of atmosphere on the gravity anomaly. 2-nd Workshop on International Gravity Field Research, Smolenice castle, Slovak Republic, May 8–9, 2006, (oral)
- (11) Vajda P. and J. Pánisová, **2006**. The geophysical indirect effect and its impact estimated for the territory of central Europe. 2-nd Workshop on International Gravity Field Research, Smolenice castle, Slovak Republic, May 8–9, 2006, (poster)
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- (9) Vajda, P., Brimich, L., Jentzsch, G., Jahr, T., and Weise, A. Interpreting temporal changes of gravity using the TFM: Mayon volcano case study. 1st Workshop on International Gravity Field Research, Graz, Austria, May 8–9, **2003**, (oral)
- (8) Vajda, P., Brimich, L. „Analytical derivation of the instant of the dimple pattern in 2D-truncation filtering methodology for a point source of heat geodynamic model.“ EGS-AGU-EUG Joint Assembly, Nice, France, April 6–11, **2003**, (poster)
- (7) Vajda, P., Brimich, L., Jentzsch, G., Jahr, T., and Weise, A. „Interpreting temporal changes of gravity at Mayon using the TFM: preliminary results.“ Workshop „Time-variable deformation and gravity fields: theory, observations, and modelling.“ Casa de los Volcanes, Lanzarote, Canary Islands, Spain, February 18–21, **2003**, (oral)
- (6) Vajda, P., 2003. „Interpreting the temporal changes of gravity by means of the truncation filtering methodology (TFM).“ Workshop „Time-variable deformation and gravity fields: theory, observations, and modelling.“ Casa de los Volcanes, Lanzarote, Canary Islands, Spain, February 18–21, **2003**, (oral)
- (5) Vajda, P., M. Bielik, and V. Pohánka. „An interpretation of the Kolárovo gravity anomaly using the truncation filtering methodology.“ The XVII Congress of Carpathian-Balkan Geological Association, Bratislava, Slovakia, September 1–4, **2002**, (oral)
- (4) Vajda, P. „Interpreting gravity data by means of truncation filtering.“ 8th International Alpine Gravimetry Colloquium, Leoben, Austria, May 4–5, **2000**, (oral)
- (3) Vajda, P., P. Vaníček, Z. Martinec and M. Paton, „Truncated Geoid and the Inverse Gravimetric Problem: Progress Report.“, The CGU Annual Meeting, Banff, Alberta, Canada, May 9–11, **1993**, (oral)
- (2) Vajda, P., M.C. Santos, P. Vaníček, P. Ong and M.R. Craymer, „A Comparison of Geoidal Deflections Computed from the UNB'91 Geoid with Observed Astrodeflections.“, The 1992 Spring Meeting of AGU-CGU-MSA, Montreal, Canada, May 12–16, **1992**, (oral)
- (1) Vajda, P., „Investigation of Possibility to Determine the Palaeointensity of the Thermoremanently Magnetised Synthetic Magnetite by the Method of Anhysteretic Magnetising.“, New Trends in Geomagnetism, Castle of Bechyne, South Bohemia, Czechoslovakia, Sept. 24–29, **1990**, (oral)

# Lectures (invited)

Vajda, P., On the definition, use and inversion of anomalous gravity. "Present Research in Advanced Geodesy" lecture series, Institute of Geodesy and Geophysics, TU Wien, Vienna, Austria, November 29, **2006** (invited lecture)

Vajda, P.: Geodynamic Applications of the truncation Filtering Methodology. Lecture at the Friedrich-Schiller-Universität Jena, Institut für Geowissenschaften, Germany, June 7, **2002**

Vajda, P.: Applications of the Truncation Filtering Methodology. Lecture at the Freie Universität Berlin, Institut für Geologische Wissenschaften, Germany, June 5, **2002**

Vajda, P.: Truncated geoid and the gravimetric inverse problem. Lecture at the Geodetic and Geophysical Research Institute in Sopron, Hungary, November 12, **1996**