iASPEI!AGA
JOINT SCIENTIFIC MEETING LISBON 2025

IAGA / IASPEI Joint Scientific Meeting

31 August - 5 September 2025
Lisbon, Portugal

BOOK OF ABSTRACTS

IUGG IAGA International Association of Geomagnetism and Aeronomy

IUGG IASPEI International Association of Seismology and Physics of the Earth's Interior

iaga-iaspei-2025.org

Title: IAGA / IASPEI Joint Scientific Meeting 2025, 31 August – 5 September 2025,
Lisbon, Portugal: Book of Abstracts
Publisher: CZECH-IN s. r. o., 5. května 65, 140 00 Prague 4, Czech Republic
Issued: August 2025
1st edition

ISBN number: 978-80-909294-2-5

Content

Oral Sessions Overview

		A.2.3	A.2.8/9	A.2.11	A.2.12/13	A.2.16/18	C.2.12	C.2.13	C.2.14	C.2.22	C.2.23	C.3.1	C.3.7	C.3.16
MON 1 Sept	08:30-10:00	IASPEI Opening Plenary (Main Auditorium)					A26	A35	A04	A27	A12		A30	
	11:00-12:30	S04	J06	S03	J09	J11	A26	A35	A04	A27	A12	S15	A30	
	14:00-15:30	S04	J06	S03	J09	J11	A26	A33/A34	A04	A27	A12	S15		
	16:30-18:30	S04	J06	S03	J09	J10	J11	A33/A34	A04	A27	A12	S15		
TUE 2 Sept	08:30-10:00	S04	J05	S05	S16	J10	A06	A33/A34	A23	A27	A16	S15	A24	
	11:00-12:30	S01	J05	S05	S16	J10	A06	A05	A23	A27	A16	S15	A24	
	14:00-15:30	S01	J05	S05	S21	S12	A01/A02	A05	A23	A27	A15	S18	A24	
	16:30-18:30	S01	J05	S05	S21	S12	A01/A02	A05	A23	A27	A15	S18	A24	
WED 3 Sept	08:30-10:00	S01	J02	S17		S12	A01/A02	A10	A31	A27	A13	S18	A18	
	11:00-12:30		S20		S09	S12	IAGA Award Ceremony (Main Auditorium)					S18		
	14:00-15:30	S22	J02	S10	J08/S23	S12	A11	A10	A31	A32	A13	S18	A18	
	16:30-18:30	S22	J02	S10	J08/S23		A11	A10	A31	A32	A13	S18	A18	
THU 4 Sept	08:30-10:00		J04	S10	J07/S06	S08	A03	A22	A31	A32	A13	S13	A20	
	11:00-12:30	S02	J04	S10	J07/S06	S08	A07	A22	A31	A32	A14	S13	A20	
	14:00-15:30	S02	J04	S10	J07/S06	S19	A07	A22	A03	A28	A14	S13	A20	
	16:30-18:30	S02	J04	S10	J07/S06	S19	A07		A03	A28	A14	S11	A20	
THU 4 Sept	08:30-10:00	S02	J03		J01	S07	A08	A25	A29	A28	A14	S11	A21	A09
	11:00-12:30	S02	J03		J01	S07	A08	A25	A29	A28	A14	S11	A21	A09
	14:00-15:30	IASPEI Closing Plenary (Main Auditorium)					A17	A25	A29	A28	A14		A21	
	16:30-18:30													

Please note the symposia schedule is subject to change.

AS25-1005

Exploring The Subsurface Structure: Seismic Refraction Tomography at Lousal Mine—Portugal

Ines Hamak[1], Pedro Teixeira[1], José Borges[1], Ivan Koulakov[2,3], Rui Oliveira[1], Bento Caldeira[1], Mourad Bezzeghoud[1], João- X. Matos[4], Sofia Andringa[5]

[1] *CREATE Center for sci-tech Research in EArth sysTem and Energy- Earth Remote Sensing Laboratory EaRSLab, Physics Department ECT- University of Évora, Évora, Portugal*

[2] *Skolkovo Institute of Science and Technology Skoltech-, Moscow 121205, Moscow, Russian Federation*

[3] *Trofimuk Institute of Petroleum Geology and Geophysics SB RAS-, Novosibirsk, Novosibirsk, Russian Federation*

[4] *Nacional Laboratory of Energy and Geology LNEG, Campus de Aljustrel, Aljustrel, Portugal*

[5] *Laboratory of Instrumentation and Experimental Particle Physics LIP, Particle Physics, Lisbon, Portugal*

Muography was first applied in Portugal through the LouMu project, a collaboration among various institutions. A previous study used this method to detect the Late Variscan NNE-directed Corona fault at Lousal Mine (Iberian Pyrite Belt, SW Portugal), revealing its location and brittle deformation, later confirmed by the velocity model. The project integrated seismic refraction to image the subsurface and validate the muography-derived density model.

Seismic imaging used an unconventional 3D setup with 256 surface shot points in a 45 m × 45 m grid and 48 geophones arranged in an H-shape inside the Waldemar mine gallery. This innovative arrangement ensured comprehensive ray coverage, overcoming limitations of previous 2D surveys that were unable to fully reveal the targeted structure. The generated model accurately constrained the main fault extension, showing strong correlation with geological structures and enabling the identification of secondary faults.

The innovative acquisition geometry required ATOM3D software to account for the unique geophone-source arrangement, highlighting the novelty of our approach and its impact on future geophysical investigations.

Acknowledgments

Ines Hamak and Pedro Teixeira are supported by the PhD grant under the references UI/BD/154621/2022 (doi: 10.54499/UI/BD/154621/2022) and PD/BD/150490/2019, respectively. This work is funded by national funds through FCT – Fundação para a Ciência e Tecnologia, I.P., in the framework of the UIDB/06107 – Centro de Investigação em Ciência e Tecnologia para o Sistema Terra e Energia (CREATE). The authors are also thankful for the help of Josué Figueira and the Centro Ciênca Viva de Lousal team, both of whom helped facilitate the seismic campaign.