

Program
AlpArray & SPP 4D-MB Scientific Meeting 2020
Online meeting
Nov 11th - 13th

- Check for program updates on the [4DMB Website](#) -

Presentation material can be uploaded/accessed [here](#) (passcode via email).

Wednesday, 11th

- 8:45 Virtual meeting room opens
9:00 – 9:20 Introduction (E. D. Kästle & M. R. Handy)
9:20 – 9:45 György Hetenyi & Thomas Meier: Information on the AlpArray seismic network, PACASE and Adria Array

Session 1: Lithospheric structure and mantle dynamics

- 9:45 – 10:15 **Keynote** Grace Shephard: Mapping the mantle from multiple seismic tomography models - visualisation and applications
10:15 – 10:30 Ahmed Nouibat: First step towards an integrated geophysical-geological model of the W-Alps: a new Vs model from transdimensional ambient-noise tomography
10:30 – 10:45 Anne Paul: The lithospheric structure of the Western Alps is far from cylindrical: new seismic evidences from Cifalps and AlpArray experiments
10:45 – 11:00 **Short break**
11:00 – 11:15 Jaroslava Plomerova: Europe-Adria collision in teleseismic tomography of the Eastern Alps from the AlpArray data
11:15 – 11:30 Mark Handy: The tectosphere and hanging slabs beneath the Alps and Apennines
11:30 – 11:45 Amr El-Sharkawy: 3-D shear wave velocity model of the Alpine upper mantle
11:45 – 12:00 Thomas Meier: Evidence for the thickness and evolution of the lithosphere in the northern Alpine foreland

12:00 - 14:00 Break / free organization of sub-group video meetings

Session 2: Crustal motion, stress, strain and seismicity

- 14:00 – 14:15 Alberto Pastorutti: Processing and quality assessment of a new terrestrial gravity dataset in northern Italy
14:15 – 14:30 Rens Hofman: Local Seismicity Patterns in the Eastern Alps
14:30 – 14:45 Gesa Petersen: Lessons learned from regional MT inversion of small earthquakes using the AASN
14:45 – 15:00 Cameron Spooner: How Alpine seismicity relates to lithospheric strength
15:00 – 15:30 **Coffee break**
15:30 – 15:45 Klaus Reicherter: Surface rupturing earthquake in the Upper Rhine Grabens: results from paleoseismological trenching
15:45 – 16:00 Sarah Mader: The seismicity and stress field of the Albstadt Shear Zone, Germany
16:00 – 16:15 Jan Pleuger: Three-dimensional temperature distribution in a fossil subduction zone resolved by RSCM thermometry (Tauern Window, Eastern Alps)
16:15 – 16:30 PICO Presentations
Christoph Grützner: Distributed Faulting in the Alps-Dinarides transition zone
Miklos Kazmer: The Vienna Basin Transfer Fault was not locked in the Middle Ages
Azam Jozi-Najafabadi: Precise re-location of local earthquakes in the Southern and Eastern Alps recorded by the SWATH-D network

- Vincent Verwater: Neogene kinematics of the eastern Southern Alps and its relationship to seismicity recorded by the Swath-D Network
- 16:30 – 16:45 PICO presenters are available for questions in the chat rooms
- 17:00 – 18:00 4DMB Steering Committee Meeting (not public)

Thursday, 12th

8:55 Virtual meeting room opens

Session 1 continued: Lithospheric structure and mantle dynamics

- 9:00 – 9:15 Leonardo Colavitti: A new inversion method to construct a 3-D crustal shear-wave velocity model from P-to-S converted waves: An application to the Central Alps
- 9:15 – 9:30 Rainer Kind: Moho structure in the greater Alpine area from S-to-P converted waves
- 9:30 – 9:45 Stefan Mroczek: Filling the Moho gap: High resolution crustal structure of the Eastern Alps
- 9:45 – 10:00 Felix Wolf: Results from the Ligurian Sea ambient noise studies
- 10:00 – 10:30 **Coffee break**
- 10:30 – 10:45 Dannowski, A.: Lithospheric architecture from geophysical AlpArray data across the Ligurian Basin
- 10:45 – 11:00 Jiri Kvapil: Transversely Isotropic Lower Crust of Variscan Central Europe imaged by Ambient Noise Tomography of the Bohemian Massif
- 11:00 – 11:15 Dorian Soergel: Azimuthal anisotropy in the greater alpine area observed with beamforming on noise cross-correlations
- 11:15 – 11:30 Frederik Link: SKS-Splitting measurements for the AlpArray and the complementary SWATH-D networks
- 11:30 – 11:45 PICO Presentations
anceled Tahira Nicole Ashruf: The Moho reflectivity of the subduction zone beneath the southwestern Alps from ambient seismic noise autocorrelations
 Angel Ling: Visualizing Global Seismic Phases using AlpArray
 Matteo Scarponi: High resolution 2-D image of the Ivrea-Geophysical Body: a joint inversion of new seismic and gravity data
 Boris Kaus: Geodynamic models to constrain the present-day dynamics of the Alps
- 11:45 – 12:00 PICO presenters are available for questions in the chat rooms.
- 11:45 – 14:00 Break / free organization of sub-group video meetings**

Session 3: Mountainbuilding in 4 Dimensions: Program Phase 2

- 14:00 – 14:05 Welcome to new SPP members
- 14:05 – 14:30 8 Project presentations
- Ehlers, **Glotzbach, Stutenbecker**: Constraining the geodynamic evolution of the Alps with sedimentary provenance and detrital thermochronometer data
- Ehlers, **Meijers**, Mulch, **Mutz**: Reconstructing Eastward Propagation of Surface Uplift in the Alps: Integrating Stable Isotope Palaeoaltimetry and Palaeoclimate Modelling
- Ehlers, **Tomasevic**: Integrated records of tectonic and climate interactions in the Northern Alpine Foreland Basin sedimentary architecture
- Ehlers, **Eizenhöfer**: Quantifying the Effects of Mantle Processes and Climate Variability on Hinterland Denudation in the Central and Eastern Alps since the Oligocene
- von Hagke, **Wellmann**: ThinkALPS - Thermokinematic models including Uncertainty of Geometry in the Alps
- Thielmann**: Quantifying Detachment Induced Surface Uplift in the Alps
- Scherler**, Winkelmann: Glacial and erosional contributions to Late Quaternary uplift of the European Alps
- Brandes, von Hagke, Tanner, **Tsukamoto**: The Last Pulse - dating the youngest deformation in the Alps with ESR thermochronometry

14:30 – 14:40 **Short break**

14:40 – 15:05 9 Project presentations

Tsukamoto, **Ustaszewski**: Identifying fossil fault activity along the eastern Periadriatic Fault system by means of combined OSL- and ESR-dating of fault gouges (NE Italy, S Austria and N Slovenia)

Grützner, Reicherter, Ustaszewski: Mountainbuilding in the Eastern and Southern Alps - large earthquakes and active faults

Götze, Kaus, **Scheck-Wenderoth**: Deformation patterns in relation to the deep configuration of the lithosphere of the Alps and their forelands - DEFORM

Le Breton, Kaus, **Schüler**: From plate tectonic reconstructions to 4D geodynamic models of the Alpine Orogeny

Schlömer: Load/Unload Mechanisms of the Seismically Active Mt. Hochstaufen, Bad Reichenhall (Germany) - Identified by Seismological, Geodetic and Meteorological Aspect

Brandes, Kühn, **Stipp**, Tanner: The Brenner base tunnel (BBT) natural laboratory – From cross-section construction over fabric and elastic anisotropy analysis to 4D structural modeling

John, **Pleuger**: How large are tectonic deviations from lithostatic pressure in a continent-derived, lithologically heterogeneous Alpine UHP nappe (Koralpe-Saualpe-Pohorje Complex, Austria and Slovenia)?

Schneider: Transpression and transtension in the Eastern Alps (TATEA): Kinematics and age of a sinistral wrench zone

Froitzheim, Stipp: High- and ultrahigh-pressure rock exhumation and tectonic structure of the southeastern Austroalpine crust

15:05 – 15:15 **Short break**

15:15 – 15:40 8 Project presentations

Bauer, **Bernhardt**, Handy: Switching pro- and retro-wedges in the Eastern Alps and their peripheral basins.

Handy, Kind, **Meier**, Rümpker: Identifying Main Lithospheric Structures in the Eastern Alpine Domain by Joint Inversion of Receiver Function and Surface Wave Measurements for Seismic Anisotropy

Kästle: Imaging the Alpine crust with ambient-noise tomography: linking surface observations to deep structures

Metzger: From Uniform to Distributed Faulting - Present-day Kinematics of the Southern and Eastern Alps

Le Breton, **Lange**: Linking the deep structure to surface deformation: Body wave tomography of the Ligurian Sea and South-Western Alps

Haberland, Rietbrock: A comprehensive high resolution 3D P- and S-wave velocity model for the Alpine mountain chain using local earthquake data: Constraining crustal structure, lithologies and mountain-building processes

Friederich, John, Pleuger, Tilmann: Applying scattered wave tomography and joint inversion of high-density (SWATH D) geophysical and petrophysical datasets to unravel Eastern Alpine crustal structure

Cesca, Kummerow: Constraints on Quaternary processes in the Eastern Alps from a new detailed image of seismicity

15:40 – 16:15 Open discussion (comments on phase 1, suggestions for phase 2, general questions, etc.)

17:00 – 18:00 AlpArray Steering Committee Meeting (not public)

Friday, 13th

8:55 Virtual meeting room opens

Session 4: Surface response to changes in deep structure

9:00 – 9:30 **Keynote** Pietro Sternai: New examples of surface-deep Earth interactions from extensional mountain ranges

9:30 – 9:45 Paul Eizenhöfer: Thermo-kinematic evolution of the Central and Eastern Alps: Exploring the transient tectonic state towards slab reversal

9:45 – 10:00 Emilija Krsnik: Stable ($\delta^{18}O$) and clumped ($\Delta 47$) isotope analyses indicate decreasing paleoelevations for the Central Alps since the Middle Miocene

10:00 – 10:15 **Coffee break**

10:15 – 10:30 Ruth Keppler: Elastic anisotropies of crustal rocks in the Alps

- 10:30 – 10:45 Elco Luijendijk: Using Thermal Springs to Quantify Deep Groundwater Flow and its Thermal Footprint in the Alps and a Comparison With North American Orogens
- 10:45 – 11:00 Christoph von Hagke: Fluid flow, heat flow & thermochronology in the Alps and the Molasse Basin
- 11:00 – 11:15 PICO session
- Matthew Fox: A model of Alpine erosion from the inversion of catchment-wide cosmogenic nuclide concentrations
- Katharina Methner: Middle Miocene climate evolution of the North Alpine Foreland
- Christoph Glotzbach: Constraining the near-surface response to lithospheric reorientation - Structural thermochronology along AlpArray geophysical transects
- 11:15 – 11:30 PICO presenters are available for questions in the chat rooms
- 11:30 – 11:45 Final remarks

Presentation list

Authors	Title	Contact
Ashruf, T.N., Morelli, A.	The Moho reflectivity of the subduction zone beneath the southwestern Alps from ambient seismic noise autocorrelations	tahira.ashruf@ingv.it
Colavitti, L., Hetényi, G., and AlpArray Working Group	A new inversion method to construct a 3-D crustal shear-wave velocity model from P-to-S converted waves: An application to the Central Alps	leonardo.colavitti@ingv.it
Dannowski, A., Köpp, H., Grevemeyer, I., Thorwart, M., Caielli, G., de Franco, R., Rathjens, K., Filbrandt, C., Lange, D., Ebbing, J., Wolf, F., Crawford, W., Paul, A., MSM71 cruise participants, and the AlpArray Working Group	Responder updated this value. Lithospheric architecture from geophysical AlpArray data across the Ligurian Basin	adannowski@geomar.de
Eizenhöfer, P.R., Glotzbach, C., Kley, J., Ehlers, T.A.	Thermo-kinematic evolution of the Central and Eastern Alps: Exploring the transient tectonic state towards slab reversal	paul-reinhold.eizenhoefer@uni-tuebingen.de
El-Sharkawy, A., Meier, T.	3-D shear wave velocity model of the Alpine upper mantle	amr.elsharkawy@ifg.uni-kiel.de
Fox, M., Herman, F., De Doncker, F.	A model of Alpine erosion from the inversion of catchment-wide cosmogenic nuclide concentrations	m.fox@ucl.ac.uk
Glotzbach, C., Kley, J., Eizenhöfer, P.R.	Constraining the near-surface response to lithospheric reorientation - Structural thermochronology along AlpArray geophysical transects	christoph.glotzbach@uni-tuebingen.de
Grützner, C., Reicherter, K., Ustaszewski K.	Distributed Faulting in the Alps-Dinarides transition zone	christoph.gruetzner@uni-jena.de
Handy, M.R., Paffrath, M., Schmid, S.M., Friederich, W.	The tectosphere and hanging slabs beneath the Alps and Apennines	mark.handy@fu-berlin.de
Hetényi, G., Molinari, I., Clinton, J., Plomerová, J.	Brief information on the AlpArray Seismic Network and PACASE	gyorgy.hetenyi@unil.ch
Hofman, R., Kummerow, J., Cesca, S., Wassermann, J., and Plenefisch, T. and the AlpArray Working Group	Local Seismicity Patterns in the Eastern Alps	renshofman@gmail.com
Jozi-Najafabadi, A., Haberland, C., Verwater, V.F., Handy, M.R., Le Breton, E.	Precise re-location of local earthquakes in the Southern and Eastern Alps recorded by the SWATH-D network	azam@gfz-potsdam.de
Kaus, B., Reuber, G.,	Geodynamic models to constrain the present-day dynamics of the Alps	kaus@uni-mainz.de
Kazmer, M.	The Vienna Basin Transfer Fault was not locked in the Middle Ages	mkazmer@gmail.com
Keppler, R., Schmidtke, M., Froitzheim, N., Vasin, R.	Elastic anisotropies of crustal rocks in the Alps	rkep@uni-bonn.de
Kind, R.	Moho structure in the greater Alpine area from S-to-P converted waves	kind@gfz-potsdam.de
Krsnik, E., Methner, K., Löffler, N., Kempf, O., Bajnai, D., Fiebig, J., Mulch, A.	Stable ($\delta^{18}O$) and clumped ($\Delta 47$) isotope analyses indicate decreasing paleoelevations for the Central Alps since the Middle Miocene	emilija.krsnik@senckenberg.de
Kvapil, J., Plomerová, J., Exnerová, H.K., Babuška, V., Hetényi, G., AlpArray Working Group	Transversely Isotropic Lower Crust of Variscan Central Europe imaged by Ambient Noise Tomography of the Bohemian Massif	j.kvapil@ig.cas.cz

Ling, A., Stähler, S., Giardini, D.	Visualizing Global Seismic Phases using AlpArray	angel.ling@erdw.ethz.ch
Link, F., Rumpker, G.	SKS-Splitting measurements for the AlpArray and the complementary SWATH-D networks	link@geophysik.uni-frankfurt.de
Luijendijk, E., Winter, T., Köhler, S., Ferguson, G., von Hagke, C., Scibek, J.	Using Thermal Springs to Quantify Deep Groundwater Flow and Its Thermal Footprint in the Alps and a Comparison With North American Orogens	elco.luijendijk@geo.uni-goettingen.de
Mader, S., Ritter, J., Reicherter, K., and the AlpArray Working Group	The seismicity and stress field of the Albstadt Shear Zone, Germany	sarah.mader@kit.edu
Meier, T., El-Sharkawy, A., Lebedev, S., Fulla, J.	Evidence for the thickness and evolution of the lithosphere in the northern Alpine foreland	thomas.meier@ifg.uni-kiel.de
Methner, K., Campani, M., Fiebig, J., Kempf, O., Krsnik, E., Mulch, A.	Middle Miocene climate evolution of the North Alpine Foreland	kmethner@stanford.edu
Mroczek, S., Tilmann, F., Pleuger, J., Yuan, X., Heit, B., and the AlpArray Working Group	Filling the Moho gap: High resolution crustal structure of the Eastern Alps	mroczek@gfz-potsdam.de
Nouibat, A., Stehly, L., Paul, A., Schwartz, Brossier and AlpArray WG	First step towards an integrated geophysical-geological model of the W-Alps: a new Vs model from transdimensional ambient-noise tomography	ahmed.nouibat@univ-grenoble-alpes.fr
Pastorutti, A., Braitenberg, C.	Processing and quality assessment of a new terrestrial gravity dataset in northern Italy	apastorutti@units.it
Paul, A., Nouibat, A., Cifalps and AlpArray Working Groups	The lithospheric structure of the Western Alps is far from cylindrical: new seismic evidences from Cifalps and AlpArray experiments	anne.paul@univ-grenoble-alpes.fr
Petersen, G., Cesca, S., Heimann, S., Dahm, T., AA working group	Lessons learned from regional MT inversion of small earthquakes using the AASN	gesap@gfz-potsdam.de
Pleuger, J., Groß, P., Zertani, S., John, T.	Three-dimensional temperature distribution in a fossil subduction zone resolved by RSCM thermometry (Tauern Window, Eastern Alps)	jan.pleuger@fu-berlin.de
Plomerova, J., Zlebckikova, H., Hetenyi, G., Vecsey, L., Babuska, V., and AlpArray working group	Europe-Adria collision in teleseismic tomography of the Eastern Alps from the AlpArray data	jpl@ig.cas.cz
Reicherter, K., Ritter, J.	Surface rupturing earthquake in the Upper Rhine Grabens: results from paleoseismological trenching	k.reicherter@nwg.rwth-aachen.de
Scarponi, M., Hetényi, G., Plomerova, J., Solarino, S.	High resolution 2-D image of the Ivrea-Geophysical Body: a joint inversion of new seismic and gravity data	matteo.scarponi@unil.ch
Scherler, D., Winkelmann, R.	Glacial and erosional contributions to Late Quaternary uplift of the European Alps (second phase project)	scherler@gfz-potsdam.de
Schneider, S., Enkelmann, E., Jonckheere, R., Pfänder, J.A., Ratschbacher, L.	Transpression and transtension in the Eastern Alps (TATEA): Kinematics and age of a sinistral wrench zone	susanne.schneider@geo.tu-freiberg.de
Shephard, G.	Mapping the mantle from multiple seismic tomography models - visualisation and applications	grace.shephard@geo.uio.no
Soergel, D., Pedersen, H., Paul, A., Stehly, L., AlpArray Working Group	Azimuthal anisotropy in the greater alpine area observed with beamforming on noise cross-correlations	dorian.soergel@univ-grenoble-alpes.fr
Spooner, C., Scheck-Wenderoth, M., Cacace, M., Anikiev, D.	How Alpine seismicity relates to lithospheric strength	spooner@gfz-potsdam.de
Sternai, P.	New examples of surface-deep Earth interactions from extensional mountain ranges	pietro.sternai@unimib.it
Tsukamoto, S., von Hagke, C., Tanner, D.C., Brandes, C.	The Last Pulse – dating the youngest deformation in the Alps with ESR thermochronometry (LUNAR): a new 4DMB project	sumiko.tsukamoto@leibniz-liag.de
Verwater, V.F., Handy, M.R., Le Breton, E., Jozi-Najafabadi, A., Haberland, C	Neogene kinematics of the eastern Southern Alps and its relationship to seismicity recorded by the Swath-D Network	vincent.verwater@fu-berlin.de
von Hagke, C., Luijendijk, E.	Fluid flow, heat flow & thermochronology in the Alps and the Molasse Basin	christoph.vonhagke@sbg.ac.at
Wolf, F., Lange, D., Dannowski, A., Thorwart, M., Kopp, H., Crawford, W., Paul, A., Grevemeyer, I., and the AlpArray Working Group	Results from the Ligurian Sea ambient noise studies	fnwolf@geomar.de