Tectonics

Supporting Information for

Active seismotectonic deformation in front of the Dolomites Indenter, Eastern Alps

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Additional Supporting Information (Files uploaded separately)

Dataset S1: Catalogue of Fault Plane Solutions of Western Austria and adjacent Regions.
Dataset S2: Earthquake catalog used.
Dataset S3: List of earthquake stations.
Dataset S4: List of relocation data.
Dataset S5: 1-D velocity model data.
Dataset S6: Basic data for all focal mechanisms.
Dataset S7: Additional data for newly calculated fault plane solutions.
Dataset S8: Results of stress and strain calculations.

Introduction

The supporting information starts with Figure S1 with lower hemisphere plots to illustrate the focal mechanism calculations. Additionally, we list all calculated and published focal mechanisms and waveform inversions in Table S1. Figure S1 and Table S1 support chapter 6.1. (Results of the focal mechanism calculations).

Figure S2 supports Figure 4 in chapter 6.1 and explains the lower hemisphere diagrams used in Figure 4 in more detail than in the main publication

Figures S3 to S7 are more detailed maps of the seismotectonic domains we found and support Figure 4 and chapter 6.1.

Figure S8 illustrates and lists the results of the stress/strain calculation with the NDA method (chapter 6.2).

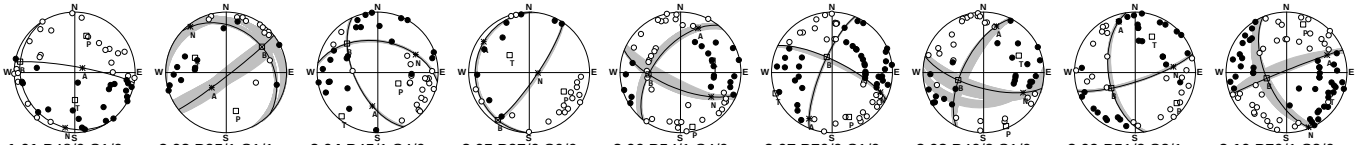
Table S2 lists the numerical results of the stress/strain calculations with the SI (Vavryčuk, 2014), FMSI (Gephart, 1990) and NDA methods (Spang, 1972).

The digital datasets S1-S8 contain a catalogue of all calculated or recalculated focal mechanisms listed and shown in the main publication and numerical values of the fault plane solutions and stress calculations as xlsx or txt tables.

Previously non-public waveform data from network OE and the software used for calculation are available in online repositories (see link on Tectonics article web page).

For references, see main publication.

Figure S1. (following two pages) Fault plane solutions calculated for this study. The lower hemisphere equal area plots show compressive P-wave first onsets as white dots and dilatational as black ones. The set of valid solutions calculated in one-degree steps from p-wave first onsets is shown as a cloud of grey great circles. Additionally, SV and SH primary onsets and S/P amplitude ratios were used to narrow and prove the set of valid solutions and to select one, most likely pair of nodal planes (black great circles). P, B and T in the diagram denominate the principal stress axes, A and N the slip lineation on the main and auxiliary nodal planes (see Table S1 for numeric values). The text below the diagrams lists the seismotectonic domain and ID of the event (see main text for details, events are in chronologic order for each domain), the number



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A8/2 E:0.19 Q:4

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A19/3 E:0.24 Q:2

2.05 P27/0 S0/0
A16/3 E:0.33 Q:2

2.06 P54/1 S4/0
A60/7 E:0.28 Q:1

2.07 P70/0 S1/0
A53/18 E:0.31 Q:1

2.08 P49/2 S1/0
A63/13 E:0.28 Q:1

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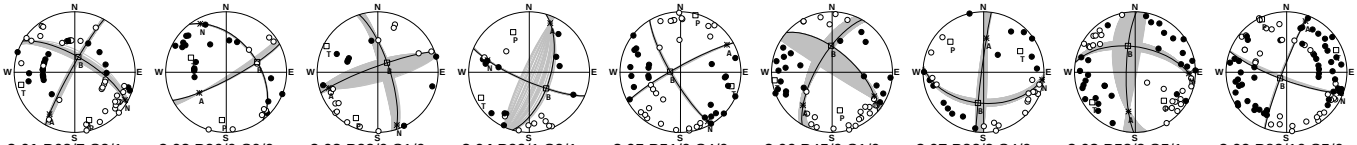
A60/18 E:0.26 Q:1

2.10 P79/1 S3/0
A36/4 E:0.30 Q:1



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A18/6 E:0.34 Q:4

3.02 P29/0 S0/0
A19/12 E:0.34 Q:3

3.03 P23/0 S1/0
A17/4 E:0.28 Q:3

3.04 P22/1 S2/1
A15/5 E:0.33 Q:4

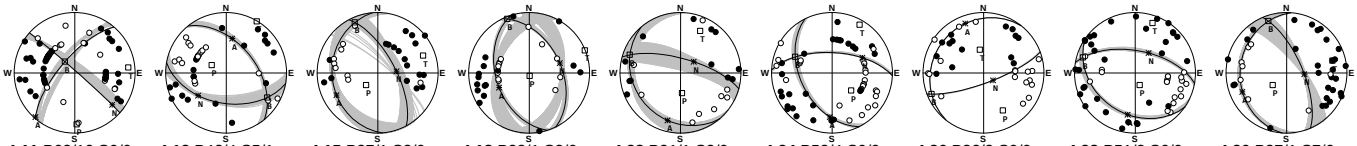
3.05 P51/0 S4/0
A24/5 E:0.31 Q:2

3.06 P45/0 S1/0
A72/11 E:0.29 Q:1

3.07 P32/2 S4/0
A19/2 E:0.30 Q:3

3.08 P53/3 S5/1
A81/20 E:0.28 Q:2

3.09 P83/10 S5/0
A27/7 E:0.31 Q:2



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A5/3 E:0.06 Q:3

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A10/0 E:0.31 Q:3

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A11/0 E:0.25 Q:4

4.18 P28/1 S2/0
A10/0 E:0.23 Q:3

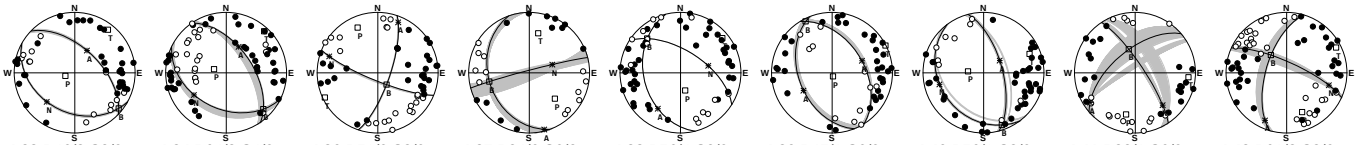
4.23 P21/1 S2/0
A16/0 E:0.25 Q:4

4.24 P52/4 S0/0
A21/13 E:0.34 Q:3

4.26 P32/2 S0/0
A16/4 E:0.30 Q:3

4.28 P51/3 S0/0
A47/6 E:0.26 Q:1

4.30 P37/1 S7/0
A22/0 E:0.25 Q:3



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A54/11 E:0.29 Q:1

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A21/6 E:0.30 Q:2

4.37 P24/0 S6/2
A60/18 E:0.32 Q:3

4.38 P56/4 S2/0
A21/1 E:0.27 Q:1

4.39 P45/1 S6/0
A21/3 E:0.26 Q:2

4.40 P50/1 S3/0
A21/0 E:0.25 Q:2

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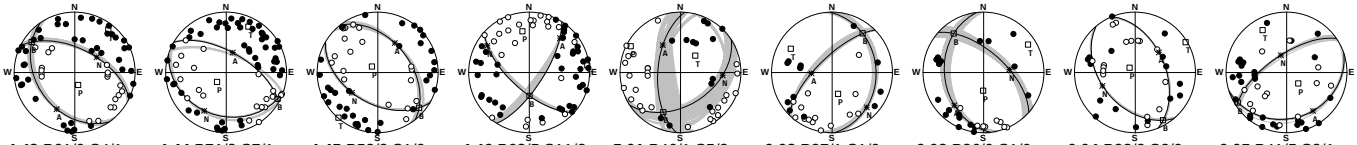
A18/2 E:0.34 Q:2

4.42 P61/3 S3/0
A30/6 E:0.29 Q:2



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A79/25 E:0.28 Q:1

4.45 P52/2 S1/0
A54/20 E:0.24 Q:1

4.46 P63/5 S11/3
A57/18 E:0.28 Q:3

5.01 P40/1 S5/2
A48/13 E:0.33 Q:2

6.02 P27/1 S1/0
A18/0 E:0.28 Q:3

6.03 P26/0 S1/0
A12/3 E:0.32 Q:3

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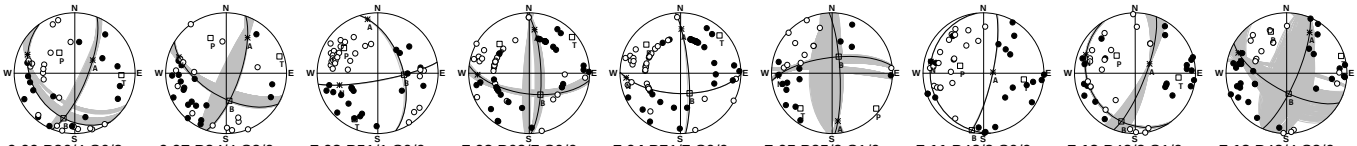
A21/2 E:0.29 Q:3

6.05 P41/5 S2/1
A22/12 E:0.29 Q:4



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A11/6 E:0.10 Q:3

7.03 P62/7 S0/0
A7/0 E:0.26 Q:3

7.04 P71/7 S0/0
A4/0 E:0.27 Q:3

7.05 P25/2 S1/0
A10/2 E:0.36 Q:4

7.11 P43/3 S0/0
A20/5 E:0.30 Q:2

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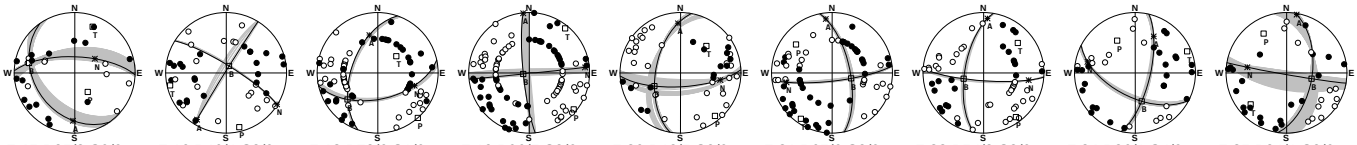
A18/4 E:0.35 Q:2

7.13 P43/4 S3/0
A24/1 E:0.30 Q:3



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A24/5 E:0.33 Q:4

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A23/9 E:0.32 Q:3

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A42/17 E:0.31 Q:3

7.19 P96/5 S8/0
A60/12 E:0.29 Q:1

7.20 P42/5 S2/0
A27/6 E:0.27 Q:3

7.21 P67/6 S2/0
A51/11 E:0.31 Q:1

7.23 P54/3 S3/0
A44/16 E:0.29 Q:2

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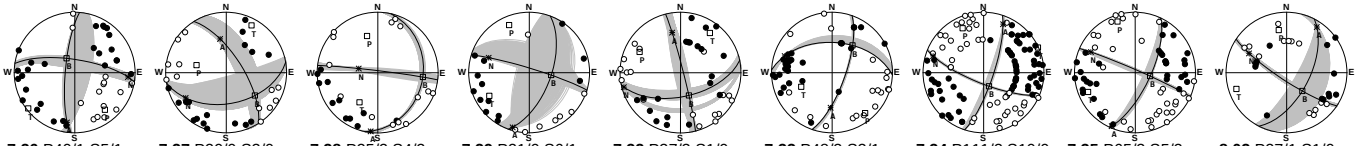
A38/17 E:0.29 Q:3

7.25 P34/1 S2/0
A41/9 E:0.33 Q:3



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A47/22 E:0.30 Q:3

7.27 P29/0 S3/0
A56/7 E:0.29 Q:2

7.28 P25/2 S4/2
A50/19 E:0.32 Q:4

7.29 P21/0 S6/1
A43/13 E:0.32 Q:4

7.32 P37/3 S1/0
A57/12 E:0.29 Q:2

7.33 P48/3 S3/1
A39/15 E:0.32 Q:3

7.34 P111/3 S10/0
A76/16 E:0.28 Q:1

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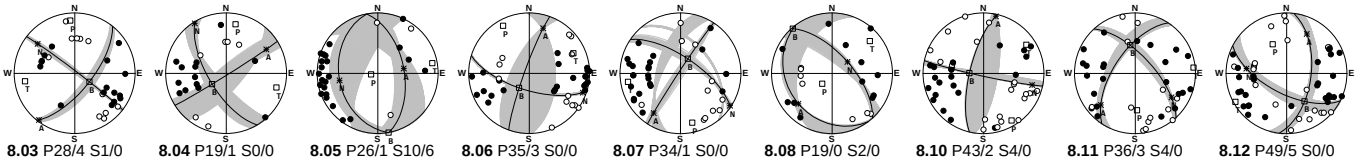
A3/0 E:0.35 Q:4



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A4/0 E:0.33 Q:4

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A11/1 E:0.28 Q:4

8.06 P35/3 S0/0
A17/5 E:0.30 Q:2

8.07 P34/1 S0/0
A8/2 E:0.12 Q:4

8.08 P19/0 S2/0
A5/0 E:0.35 Q:4

8.10 P43/2 S4/0
A44/10 E:0.29 Q:2

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A20/2 E:0.28 Q:2

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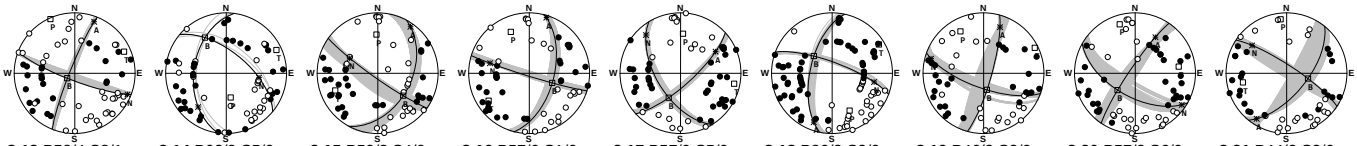
A35/6 E:0.28 Q:2



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A41/12 E:0.26 Q:2

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A41/10 E:0.29 Q:1

8.16 P57/0 S1/0
A50/12 E:0.27 Q:1

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A51/16 E:0.29 Q:1

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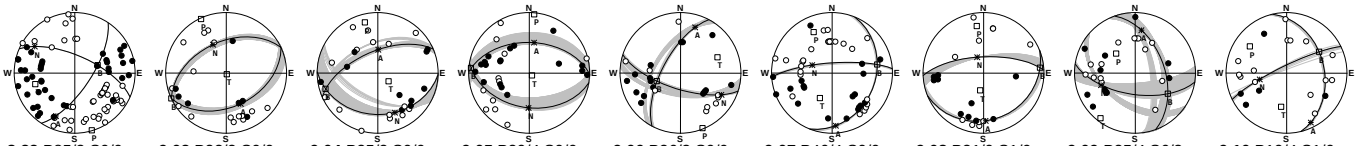
A45/14 E:0.28 Q:2



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9.04 P25/2 S0/0
A7/0 E:0.30 Q:4

9.05 P29/4 S0/0
A8/2 E:0.36 Q:3

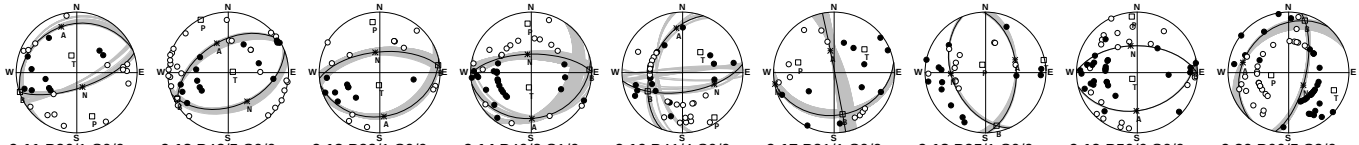
9.06 P26/2 S0/0
A7/1 E:0.23 Q:3

9.07 P46/4 S0/0
A9/1 E:0.36 Q:3

9.08 P21/0 S1/0
A11/0 E:0.25 Q:3

9.09 P25/4 S6/3
A6/0 E:0.26 Q:4

9.10 P19/4 S1/0
A7/3 E:0.30 Q:4



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A5/1 E:0.29 Q:2

9.13 P22/1 S0/0
A13/0 E:0.27 Q:3

9.14 P40/3 S1/0
A14/0 E:0.30 Q:1

9.16 P41/4 S0/0
A7/0 E:0.23 Q:3

9.17 P21/1 S0/0
A8/1 E:0.29 Q:4

9.18 P25/1 S0/0
A13/2 E:0.28 Q:4

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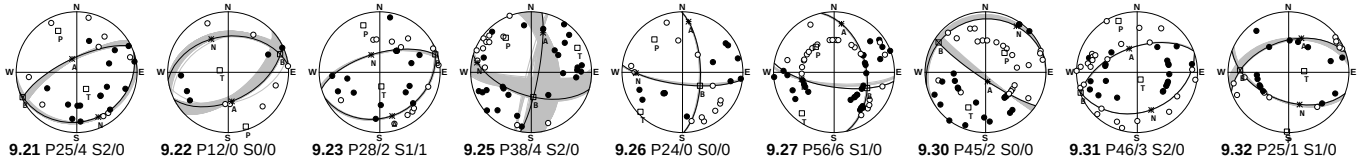
A32/2 E:0.19 Q:2

9.20 P66/5 S2/0
A22/3 E:0.26 Q:2



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A15/0 E:0.37 Q:4

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A9/2 E:0.35 Q:4

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A9/0 E:0.27 Q:3

9.25 P38/4 S2/0
A21/0 E:0.28 Q:4

9.26 P24/0 S0/0
A12/4 E:0.17 Q:4

9.27 P56/6 S1/0
A25/8 E:0.29 Q:3

9.30 P45/2 S0/0
A27/6 E:0.31 Q:2

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A30/1 E:0.24 Q:2

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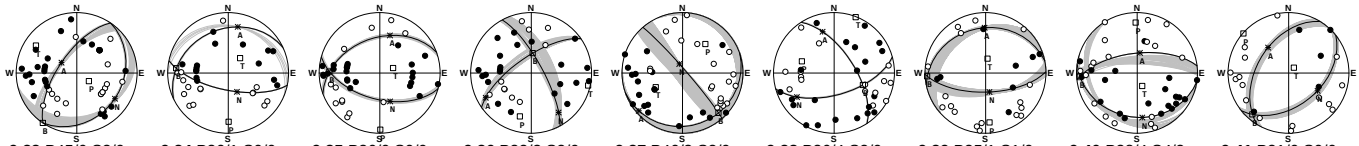
A24/7 E:0.32 Q:4



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A12/2 E:0.34 Q:4

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A12/4 E:0.29 Q:4

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A18/2 E:0.27 Q:3

9.36 P32/3 S2/0
A15/4 E:0.32 Q:4

9.37 P40/3 S2/0
A19/4 E:0.34 Q:4

9.38 P36/4 S2/0
A30/11 E:0.35 Q:4

9.39 P25/1 S1/0
A12/2 E:0.23 Q:3

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A40/7 E:0.30 Q:2

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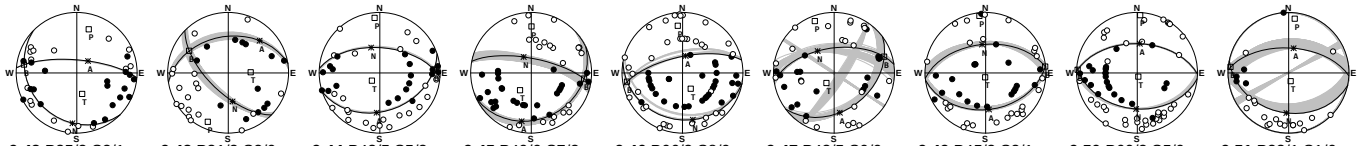

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A47/8 E:0.33 Q:3

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A24/2 E:0.30 Q:3

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A72/20 E:0.29 Q:3

9.49 P45/2 S3/1
A41/7 E:0.32 Q:2

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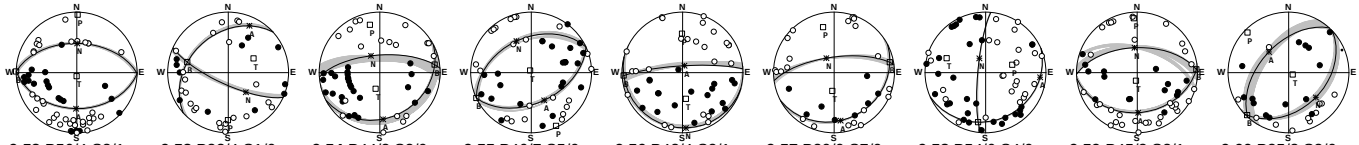

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A53/23 E:0.29 Q:3

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A37/7 E:0.32 Q:3

9.55 P46/7 S5/0
A44/11 E:0.30 Q:4

9.56 P43/4 S2/1
A35/10 E:0.26 Q:2

9.57 P29/0 S7/0
A54/9 E:0.25 Q:2

9.58 P54/6 S4/0
A57/13 E:0.24 Q:2

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A57/1 E:0.26 Q:1

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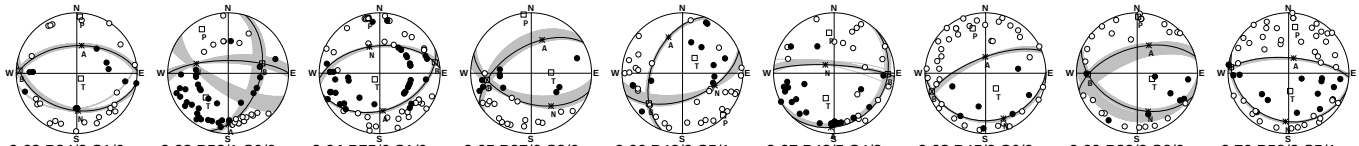
A21/3 E:0.29 Q:4



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A45/6 E:0.29 Q:4

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A75/16 E:0.29 Q:1

9.65 P27/0 S3/0
A51/10 E:0.28 Q:3

9.66 P43/2 S5/1
A45/15 E:0.29 Q:2

9.67 P43/5 S4/2
A36/15 E:0.31 Q:3

9.68 P45/2 S6/0
A57/14 E:0.29 Q:3

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A54/4 E:0.28 Q:2

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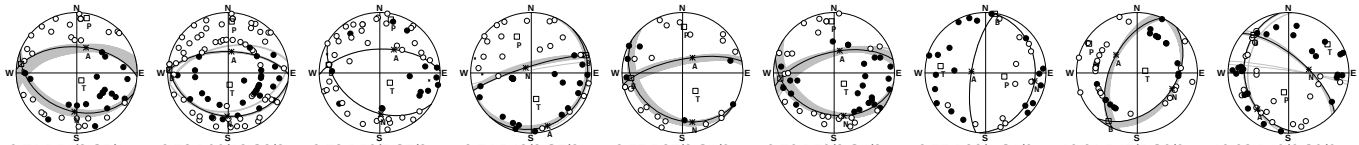
A70/11 E:0.30 Q:1



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A85/13 E:0.30 Q:1

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A58/18 E:0.29 Q:1

9.74 P43/3 S7/2
A54/13 E:0.34 Q:2

9.75 P27/2 S1/0
A19/4 E:0.37 Q:4

9.76 P50/8 S4/2
A45/9 E:0.28 Q:3

9.77 P32/1 S1/0
A22/3 E:0.30 Q:2

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A26/11 E:0.21 Q:4

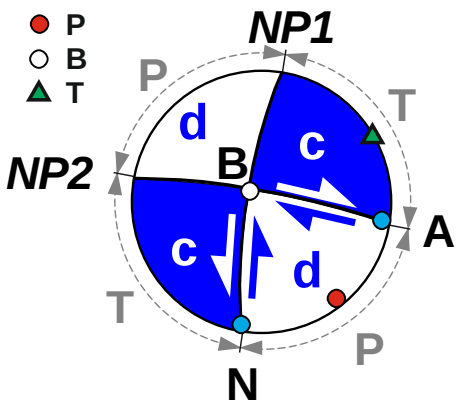


Figure S2. The two nodal planes, drawn as great circles on the lower hemisphere (NP1, NP2) divide the diagram area into four areas (dihedra). Dilatational (d) P-wave arrivals are drawn with their azimuth event-station and takeoff angle and plot into the white dihedra, compressive (c) P-wave arrivals plot into the colored dihedra. The fault slip vectors N and A are commonly not drawn and plot on the nodal planes, 90° away from their intersection line which is the position of the intermediate stress axis (B). In the example shown here, NP1 is a sinistral strike-slip fault, NP2 its conjugate counterpart. Both faults produce the same P- and S-wave arrival pattern. Note that the location of the P- and T-axes is not straightforward. If we assume fault reactivation and we do not know which of the two nodal planes is the actual fault, any position of P/T in the dilatational/compressional diheder would be valid (McKenzie, 1969).

Table S1. (following three pages) Numerical details of focal mechanisms from the area shown in Figure 4. Events are ordered by seismotectonic domains (see main text for details). Within each domain, events are sorted chronologically in ascending order (UTC). Lat, Lon, z: hypocentral coordinates; Str (strike), Dip, Rake: orientation of the nodal and auxiliary planes; Azi, Pl: orientation of the P- and T-axes; Class: Fault classification after Johnston et al. (1994), using FMC software (Álvarez-Gómez, 2014): N normal, R reverse, SS strike-slip and combinations in between these end members; Type: Calculation Type: FPS fault plane solution, FWI full waveform inversion; References: 1. new, previously unpublished focal mechanism (this publication); 2. Viganò et al. (2008); 3. Using data from Kraft (1999); 4. Pondrelli et al. (2004); 5. Slejko et al. (1989); Slejko and Rebez (1988); 6. Slejko et al. (1989); 7. Reiter et al. (2005); 8. Roth et al. (1992); 9. Modified by Kastrup et al. (2004); 10. Marschall et al. (2013); 11. Pondrelli et al. (2002); 12. Schweizerischer Erdbebendienst (2017); 13. Deichmann et al. (2004); 14. Baer et al. (2007); 15. Deichmann et al. (2010); 16. Deichmann et al. (2012); 17. Diehl et al. (2013); 18. Istituto Nazionale di Geofisica e Vulcanologia (2017); 19. Bernardi et al. (2005); 20. Braunmiller (2002); 21. Baer et al. (2001); 22. Deichmann et al. (2006); 23. Diehl et al. (2014); 24. Deichmann et al. (2011); 25. Saint Louis University Earthquake Center (2017); 26. Deichmann et al. (2002); 27. Baer et al. (2005); 51. Focal mechanism changed/recalculated with additional data; 52. Fault plane solution calculated using digital waveform data from Diehl et al. (2009); 53. Using relocated coordinates from Viganò et al. (2015); 54. As before, z adjusted to lower error limit given in their paper based on macroseismic evidence and other published localizations cited there. 55. Using waveform data from the AlpArray temporary Network (AlpArray Working Group, 2015).

						Plane 1			Plane 2			P-Axis		T-Axis				
ID	UTC	Lat	Lon	z	Ml	Str	Dip	Rake	Str	Dip	Rake	Azi	Pl	Azi	Pl	Class	Type	Ref
						1: Southern Alps low seismicity domain												
1.01	2013-07-13 14:46:11	46.64	11.76	10.2	2.8	279	82	081	148	12	139	017	36	178	52	R	FPS	1
						2: Giudicarie fault system												
2.01	1992-12-25 03:43:09	46.37	11.15	17.1	2.9	015	90	-055	105	35	-180	315	35	075	35	N	FPS	2
2.02	1998-07-29 06:35:24	46.77	11.40	9.0	2.7	052	86	062	314	28	171	166	35	295	43	R	FPS	3, 51, 52
2.03	2001-07-17 15:06:15	46.68	11.10	7.3	5.3	210	72	007	117	83	162	071	21	166	11	SS-N	FWI	4, 54
2.04	2007-01-22 19:39:23	46.73	11.19	14.0	3.0	155	59	-053	279	47	-135	118	58	219	07	N-SS	FPS	1
2.05	2008-09-11 09:08:04	46.83	11.21	6.8	2.6	183	12	059	034	80	096	119	35	312	55	R	FPS	1
2.06	2010-04-03 13:10:27	46.82	11.17	10.8	3.1	218	54	028	111	68	141	168	08	070	43	SS-R	FPS	1
2.07	2012-03-16 02:31:12	46.69	11.09	13.1	3.6	202	75	-016	297	74	-165	159	22	249	01	SS	FPS	1
2.08	2014-01-12 20:11:36	46.81	11.17	9.6	3.4	207	62	024	105	69	150	157	04	064	36	SS-R	FPS	1
2.09	2015-09-01 22:40:01	46.71	11.13	11.4	2.9	171	54	015	072	78	143	126	15	025	35	SS-R	FPS	1
2.10	2017-05-14 10:52:51	46.88	11.46	11.8	3.3	248	87	028	157	62	177	019	17	116	21	SS-R	FPS	1, 55
						3: Eastern Periadriatic fault system												
3.01	1997-09-29 21:01:35	46.74	12.19	7.5	3.6	209	84	-020	301	70	-174	163	18	257	10	SS	FPS	3, 51, 53
3.02	1999-12-25 23:36:02	46.72	12.52	7.8	2.9	062	80	044	323	47	166	185	21	292	37	SS-R	FPS	1
3.03	2001-09-08 20:53:28	46.68	13.63	8.0	2.3	250	82	-016	342	74	-172	205	17	297	06	SS	FPS	1
3.04	2006-01-18 00:16:45	46.97	13.26	4.7	2.9	016	61	-014	113	78	-150	338	30	242	11	SS-N	FPS	1
3.05	2010-01-21 16:20:47	46.83	12.99	8.9	2.6	241	82	012	149	78	172	015	03	105	14	SS	FPS	1
3.06	2013-04-10 21:55:19	46.92	12.68	9.4	2.7	210	69	-028	311	64	-157	169	34	261	03	SS-N	FPS	1
3.07	2014-01-29 11:36:24	46.75	11.80	11.3	2.5	187	87	043	095	47	176	313	27	060	31	SS-R	FPS	1
3.08	2016-04-20 06:07:21	46.73	12.56	11.2	2.6	181	78	-035	280	56	-166	135	33	235	15	SS-N	FPS	1, 55
3.09	2017-05-04 21:58:26	46.81	11.96	9.7	3.1	201	85	011	110	79	175	335	04	066	11	SS	FPS	1
						4: Central Alpine extension domain												
4.01	1983-03-31 00:18:26	46.71	10.47	2.0	3.6	058	80	-006	149	84	-170	014	06	284	06	SS	FPS	5, 6
4.02	1983-07-31 20:52:56	46.69	10.52	8.0	4.0	038	80	-011	130	79	-170	356	08	264	08	SS	FPS	5, 6
4.03	1984-05-02 10:28:51	46.80	11.10	8.0	3.6	324	41	-075	124	51	-103	339	79	233	05	N	FPS	7
4.04	1984-06-08 02:43:34	46.69	10.32	10.0	3.8	040	62	010	306	81	152	356	12	260	26	SS-R	FPS	5, 6
4.05	1987-04-29 20:41:47	46.49	9.82	8.0	2.6	353	67	-012	088	79	-156	312	24	219	08	SS-N	FPS	8
4.06	1988-05-23 21:56:00	46.73	9.64	7.0	2.1	345	47	-054	118	54	-122	328	64	230	04	N-SS	FPS	8, 9
4.07	1990-03-18 09:54:30	46.79	9.84	4.0	3.3	326	38	-038	088	68	-121	317	56	201	17	N-SS	FPS	8
4.08	1990-08-20 13:33:35	47.05	11.30	10.0	3.6	352	65	-079	147	27	-113	283	68	074	19	N	FPS	7
4.09	1991-11-20 01:54:18	46.73	9.53	6.0	4.6	294	37	-072	092	55	-103	321	76	191	09	N	FPS	10
4.10	1992-03-29 16:24:27	46.74	9.51	7.0	2.8	312	54	-083	120	37	-100	253	80	037	08	N	FPS	10
4.11	1997-04-12 23:00:00	46.57	10.42	5.6	3.5	221	70	-003	312	87	-160	178	16	084	12	SS	FPS	1
4.12	1997-05-13 02:58:42	46.65	10.35	10.0	2.9	321	50	-061	100	48	-120	298	68	031	01	N	FPS	1, 52
4.13	1999-12-29 20:42:33	46.55	10.31	10.0	5.3	320	43	-099	152	47	-082	126	84	237	02	N	FWI	11
4.14	1999-12-31 04:55:53	46.55	10.32	12.0	4.8	013	34	-045	143	67	-116	015	60	252	18	N-SS	FWI	11
4.15	2000-04-03 00:28:05	46.60	10.37	2.2	3.2	175	26	-069	332	66	-100	224	67	069	21	N	FPS	1, 53
4.16	2000-04-06 17:40:41	46.57	10.33	12.5	3.6	359	47	-064	144	49	-115	344	71	251	01	N	FWI	11, 53
4.17	2001-10-01 06:36:23	46.52	10.33	6.0	3.5	152	60	-064	288	39	-127	108	65	223	11	N-SS	FWI	12, 53
4.18	2001-12-18 01:14:12	46.89	11.37	8.0	2.7	162	44	-084	334	46	-096	172	86	068	01	N	FPS	1
4.19	2002-01-18 11:14:54	46.57	10.32	6.0	3.4	142	62	-076	295	31	-114	081	70	222	12	N	FWI	12
4.20	2003-07-17 02:27:16	46.79	9.82	4.5	3.6	339	61	-056	105	43	-135	298	59	045	10	N-SS	FWI	12, 53
4.21	2003-07-18 11:01:33	46.72	9.84	7.0	3.9	341	60	-057	109	43	-133	301	60	048	09	N-SS	FWI	13
4.22	2003-08-01 03:20:25	46.73	9.84	7.0	3.9	348	71	-043	095	49	-155	303	43	046	13	SS-N	FWI	12
4.23	2004-06-26 17:07:35	46.65	10.85	8.0	2.7	138	21	-058	284	72	-102	177	61	023	26	N	FPS	1
4.24	2004-11-04 19:11:44	47.09	11.10	13.0	3.1	153	47	-040	273	62	-129	133	54	030	09	N-SS	FPS	7, 51, 52
4.25	2006-04-12 22:24:53	46.61	10.26	2.7	3.2	285	28	-148	166	76	-066	104	53	237	27	N	FWI	14, 53
4.26	2006-10-17 05:41:35	46.50	10.50	7.2	3.5	219	16	060	070	76	098	153	31	351	58	R	FPS	1
4.27	2008-04-17 01:07:36	46.65	10.09	5.0	3.5	008	89	074	273	16	175	113	41	262	44	R	FWI	12
4.28	2008-10-10 22:43:47	46.74	10.74	11.1	3.1	124	33	-069	280	60	-103	159	72	019	14	N	FPS	1
4.29	2008-12-13 06:02:23	46.50	10.06	2.0	3.3	169	80	-003	260	87	-170	125	09	034	05	SS	FPS	10
4.30	2009-06-18 23:03:01	46.67	10.56	10.1	2.8	184	24	-065	337	68	-101	228	65	075	23	N	FPS	1
4.31	2009-09-11 06:34:38	46.53	9.70	11.0	3.5	094	55	-148	345	64	-039	306	45	042	05	N-SS	FWI	15
4.32	2011-09-04 12:39:42	46.54	10.91	6.0	3.1	314	56	-082	119	35	-102	251	77	038	11	N	FPS	1
4.33	2011-12-03 08:32:51	46.67	9.96	8.8	3.1	291	42	-120	149	55	-066	114	69	222	07	N	FPS	16
4.34	2012-01-01 15:33:49	46.70	9.74	8.9	3.3	326	54	-071	116	40	-114	286	73	042	08	N	FPS	1
4.35	2012-01-02 01:42:58	46.70	9.74	6.0	3.5	327	54	-080	130	37	-103	274	78	050	08	N	FPS	17
4.36	2012-01-27 07:39:52	46.67	10.86	6.0	2.9	019	73	-011	112	79	-163	336	20	245	04	SS	FPS	1
4.37	2013-01-13 13:30:50	47.02	10.54	6.1	2.5	160	33	-006	255	87	-123	135	39	013	33	N	FPS	1
4.38	2013-07-20 19:50:26	46.81	10.08	7.4	2.8	166	39	-053	302	60	-116	165	65	050	11	N-SS	FPS	1
4.39	2014-07-07 06:46:35	46.41	10.56	11.0	3.0	158	44	-083	328	46	-097	164	85	063	01	N	FPS	1
4.40	2014-08-28 11:30:40	46.63	10.53	12.1	3.1	345	64	-080	143	27	-110	275	69	068	19	N	FPS	1
4.41	2014-12-01 18:37:43	46.92	11.28	5.2	2.5	230	60	-014	327	78	-149	192	30	095	12	SS-N	FPS	1
4.42	2015-01-25 17:34:26	46.78	10.16	7.2	3.1	196	62	-016	294	76	-151	158	30	063	09	SS-N	FPS	1
4.43	2015-08-29 13:07:18	46.68	10.63	11.1	3.5	145	36	-066	296	57	-107	164	72	038	11	N	FPS	1
4.44	2016-03-13 00:58:49	46.68	10.65	10.1	3.1	300	62	-084	108	28	-101	223	72	026	17	N	FPS	1
4.45	2016-03-24 06:12:39	46.82	10.96	2.1	2.9	322	45	-074	120	47	-105	316	79	221	01	N	FPS	1
4.46	2016-04-02 16:47:40	46.89	10.57	10.4	2.7	033	71	-026	132	65	-159	351	32	083	04	SS-N	FPS	1, 55
4.47	2016-10-07 07:27:07	46.52	9.54	10.4	4.2	077	71	-130	326	44	-028	304	48	195	16	N-SS	FWI	18
						5: Central East Alpine low seismicity domain												
5.01	2014-03-27 11:22:03	47.10	12.29	12.9	3.3	184	59	056	057	45	133	298	08	042	60	R-SS	FPS	1
						6: Central East Alpine extension domain												
6.01	2003-08-25 21:49:23	46.97	13.67	8.0	3.4	176	53	-104	019	39	-072	037	77	276	07	N	FWI	12

						Plane 1			Plane 2			P-Axis		T-Axis				
ID	UTC	Lat	Lon	z	Ml	Str	Dip	Rake	Str	Dip	Rake	Azi	Pl	Azi	Pl	Class	Type	Ref
6.02	2003-08-26 00:53:54	46.99	13.67	8.0	3.2	225	70	-070	358	28	-134	164	60	300	23	N	FPS	1
6.03	2006-05-13 12:01:06	46.98	13.25	6.9	3.0	173	36	-054	312	62	-113	181	65	058	14	N-SS	FPS	1
6.04	2006-10-14 13:09:19	46.97	13.26	7.5	3.4	338	49	-078	140	43	-103	311	81	059	03	N	FPS	1
6.05	2007-02-23 06:14:38	47.01	13.28	7.4	3.2	072	25	-076	236	66	-097	133	68	331	21	N	FPS	1
6.06	2009-09-27 08:04:00	47.03	13.31	5.9	2.7	022	73	-065	144	30	-144	324	55	092	24	N-SS	FPS	1
6.07	2013-10-21 22:02:13	47.00	13.27	7.1	3.1	019	72	-034	121	58	-158	336	37	072	09	SS-N	FPS	1
	7: Central Alpine transition domain																	
7.01	1992-05-08 06:44:40	47.15	9.52	6.0	4.6	102	63	-160	003	72	-028	321	32	054	06	SS-N	FWI	19
7.02	1996-05-17 09:30:59	47.17	9.49	1.0	3.6	343	56	-012	080	80	-145	307	31	207	16	SS-N	FPS	1
7.03	1996-06-15 21:40:08	47.21	10.14	14.5	4.0	358	74	-029	097	62	-162	315	32	050	08	SS-N	FPS	1
7.04	1996-06-28 09:57:43	47.20	10.10	18.0	4.3	355	79	-028	091	62	-168	310	27	046	11	SS-N	FPS	1, 52
7.05	1997-06-01 01:09:01	47.29	10.73	11.0	3.1	360	79	022	266	69	169	131	07	224	23	SS-R	FPS	1
7.06	1997-06-05 20:22:58	47.21	10.82	18.0	4.2	268	85	165	359	79	005	314	07	223	14	SS	FWI	20
7.07	2000-02-22 22:45:34	46.85	9.98	4.0	3.3	171	89	-009	261	81	-179	126	07	217	05	SS	FWI	21
7.08	2000-02-23 04:07:07	47.04	9.50	7.0	3.6	190	65	020	092	72	154	142	05	049	31	SS-R	FWI	21
7.09	2000-06-03 15:14:11	47.20	10.12	3.0	3.5	019	77	007	287	83	167	334	04	243	14	SS	FWI	21
7.10	2000-06-10 05:51:01	47.20	10.11	3.0	3.6	010	71	007	278	83	161	326	08	233	18	SS	FWI	21
7.11	2000-09-09 02:02:07	47.21	10.12	3.0	3.0	012	78	-086	173	13	-109	288	57	099	33	N	FPS	1, 52
7.12	2001-03-16 05:40:36	47.21	10.15	5.0	3.2	021	76	-071	147	23	-141	314	55	096	28	N	FPS	1, 52
7.13	2001-10-30 17:30:22	47.26	10.17	10.0	3.2	029	76	-026	125	65	-165	345	28	079	08	SS-N	FPS	1, 52
7.14	2003-01-29 08:00:04	47.26	10.19	7.0	3.7	205	85	011	114	80	175	339	04	070	11	SS	FWI	12
7.15	2004-01-10 02:51:58	47.13	10.67	8.0	2.6	145	33	-042	272	68	-116	146	59	021	19	N-SS	FPS	1, 52
7.16	2005-05-03 15:35:10	47.18	10.79	8.0	3.0	212	88	-010	302	80	-178	166	08	257	06	SS	FPS	1
7.17	2005-05-27 17:22:44	47.03	9.51	8.0	2.9	189	75	019	094	72	164	321	02	052	24	SS-R	FWI	22
7.18	2006-02-26 15:30:42	47.14	10.92	11.9	3.6	199	54	046	078	54	134	138	00	048	56	R-SS	FPS	1
7.19	2007-05-19 16:19:38	47.18	10.60	7.8	4.2	174	82	001	084	89	172	129	05	039	06	SS	FPS	1
7.20	2007-08-05 11:15:41	47.07	9.62	6.1	3.2	190	56	023	087	71	144	142	10	044	38	SS-R	FPS	1
7.21	2007-10-15 16:25:49	47.18	10.60	8.2	3.4	348	66	-012	083	79	-155	308	25	214	09	SS-N	FPS	1
7.22	2009-01-17 07:09:57	47.14	9.53	5.0	3.0	110	30	-125	329	66	-072	270	64	045	19	N	FPS	15
7.23	2010-07-09 06:28:08	47.25	10.71	7.6	3.3	189	64	012	094	79	154	144	10	049	26	SS-R	FPS	1
7.24	2010-07-09 12:11:31	47.26	10.72	6.2	2.8	013	70	-035	117	57	-155	331	39	068	08	SS-N	FPS	1
7.25	2011-01-31 11:44:25	47.24	10.73	4.6	2.7	008	55	-003	100	88	-145	330	26	229	22	SS-N	FPS	1
7.26	2012-01-13 14:01:52	47.34	10.68	2.0	2.6	185	77	-018	279	72	-167	141	22	232	03	SS	FPS	1
7.27	2012-08-28 10:32:35	47.20	10.81	8.1	2.6	328	68	-047	080	47	-149	284	48	028	12	N-SS	FPS	1
7.28	2012-09-27 18:33:53	47.24	10.87	2.0	2.1	012	26	006	277	87	116	344	37	212	42	R	FPS	1
7.29	2012-11-20 22:17:10	47.10	10.71	8.1	2.1	020	61	006	288	85	151	337	16	240	23	SS-R	FPS	1
7.30	2013-12-12 00:59:19	47.06	9.49	5.9	4.1	182	77	015	088	76	166	315	01	045	20	SS	FWI	23
7.31	2013-12-27 07:08:28	47.06	9.50	6.0	3.7	087	77	-179	357	89	-013	311	10	043	08	SS	FPS	23
7.32	2015-02-25 07:57:51	47.29	11.03	7.1	3.0	346	86	-033	078	57	-175	297	25	037	20	SS-N	FPS	1
7.33	2015-09-01 01:36:28	47.33	10.67	1.1	2.5	019	72	044	273	48	156	141	14	245	43	R-SS	FPS	1
7.34	2016-01-31 22:43:58	47.11	10.10	9.1	3.6	018	77	-015	112	75	-166	335	20	065	01	SS	FPS	1, 55
7.35	2016-02-17 20:17:04	47.10	10.09	6.8	3.0	025	69	004	294	86	159	341	12	247	17	SS	FPS	1, 55
	8: Brenner-Inntal transfer zone																	
8.01	1984-02-26 01:35:40	47.22	11.40	11.0	4.4	240	60	000	330	90	-150	199	21	101	21	SS-R	FPS	7
8.02	1996-07-17 00:50:07	47.12	11.54	7.0	3.4	027	59	-012	123	80	-148	350	29	252	14	SS-N	FPS	1
8.03	1996-07-17 00:54:12	47.11	11.54	6.0	3.9	039	67	003	307	87	157	355	14	261	18	SS-R	FPS	7, 51, 52
8.04	1997-09-14 15:46:45	47.08	11.45	6.0	2.5	058	88	-024	149	66	-177	011	18	106	15	SS-N	FPS	7, 51, 52
8.05	1998-08-29 06:27:04	47.08	11.31	12.0	2.8	350	54	-090	170	36	-090	260	81	080	09	N	FPS	3, 7, 51, 52
8.06	1998-09-30 05:53:40	47.29	11.20	15.0	3.0	200	84	023	107	67	173	331	11	066	21	SS-R	FPS	3, 7, 51
8.07	2000-07-02 13:36:38	47.11	11.27	5.0	2.9	213	87	-022	304	68	-177	167	17	261	13	SS	FPS	1
8.08	2000-08-07 21:43:35	47.16	11.40	5.0	2.5	141	27	-088	318	63	-091	226	72	049	04	N	FPS	7, 51, 52
8.09	2005-09-06 07:08:29	47.25	11.70	7.8	3.6	149	72	155	247	66	019	199	04	107	30	SS-R	FWI	12
8.10	2007-05-13 01:45:55	47.17	11.10	11.6	2.8	193	71	004	102	86	161	149	10	056	16	SS	FPS	1
8.11	2007-06-15 02:14:41	47.14	11.18	13.1	2.6	213	61	-028	317	66	-148	177	39	084	03	SS-N	FPS	1
8.12	2007-12-22 17:58:17	47.17	11.29	9.8	2.7	007	57	-034	117	62	-142	335	46	241	04	N-SS	FPS	1
8.13	2008-03-18 11:03:42	47.13	11.35	8.9	3.5	202	83	010	111	80	173	336	02	066	12	SS	FPS	1
8.14	2008-09-17 22:10:38	47.05	11.33	11.4	3.1	187	45	-042	310	62	-127	169	56	065	09	N-SS	FPS	1
8.15	2011-06-21 22:14:31	47.22	11.21	5.1	2.9	028	44	-010	125	83	-133	358	36	248	25	SS-N	FPS	1
8.16	2011-09-05 02:45:38	47.07	11.29	10.5	2.6	014	56	-005	107	86	-146	336	26	236	20	SS-N	FPS	1
8.17	2012-11-09 16:29:41	47.21	11.36	8.8	2.7	048	74	-034	148	58	-161	004	35	101	11	SS-N	FPS	1
8.18	2012-12-06 19:21:59	47.16	11.07	7.1	3.2	192	60	-017	291	75	-149	155	32	059	10	SS-N	FPS	1
8.19	2013-03-16 20:18:08	47.11	11.17	1.9	3.1	016	79	-020	110	70	-168	331	22	064	06	SS-N	FPS	1
8.20	2016-01-15 20:43:06	47.18	11.34	7.1	3.0	214	82	032	119	58	171	343	16	082	28	SS-R	FPS	1
8.21	2016-10-05 06:27:02	47.17	11.34	6.7	2.6	039	62	012	303	79	152	354	11	258	27	SS-R	FPS	1, 55
8.22	2017-05-12 07:44:12	47.25	11.33	13.4	3.5	034	68	025	294	67	156	163	01	254	33	SS-R	FPS	1, 55
	9: North Alpine thrust domain																	
9.01	1982-05-01 06:33:10	47.28	11.51	6.0	3.5	038	70	-006	310	90	-160	356	14	264	14	SS	FPS	5, 6
9.02	1987-11-01 10:16:21	47.23	9.62	1.0	2.6	295	78	-170	203	80	-012	159	16	249	01	SS	FPS	8
9.03	1996-07-15 22:22:00	47.63	12.40	10.0	3.1	065	43	090	245	47	090	335	02	155	88	R	FPS	1
9.04	1996-10-03 09:29:25	47.43	11.87	5.0	2.9	247	61	077	091	32	111	346	15	127	71	R	FPS	1, 52
9.05	1996-11-21 23:08:12	47.24	10.48	5.0	2.7	271	48	085	099	42	096	005	03	132	85	R	FPS	1, 52
9.06	1997-08-11 15:04:07	47.31	11.32	4.0	2.7	208	65	024	107	68	153	158	02	067	34	SS-R	FPS	1
9.07	1997-10-19 10:30:58	47.38	11.80	7.0	3.0	022	29	029	266	76	116	336	27	206	52	R	FPS	3, 51, 52
9.08	1998-02-19 05:04:57	47.32	13.35	10.0	3.3	068	23	072	268	68	098	352	23	191	66	R	FPS	1
9.09	1998-03-09 02:17:29	47.31	11.27	9.0	2.5	340	50	-040	099	61	-132	316	53	217	06	N-SS	FPS	3, 51, 52

						Plane 1			Plane 2			P-Axis		T-Axis				
ID	UTC	Lat	Lon	z	Ml	Str	Dip	Rake	Str	Dip	Rake	Azi	Pl	Azi	Pl	Class	Type	Ref
9.10	1998-03-09 02:49:32	47.30	11.31	8.0	2.3	347	38	016	244	80	127	306	26	189	43	R-SS	FPS	3, 51, 52
9.11	1998-03-20 03:11:42	47.16	9.65	4.0	3.3	248	21	087	071	69	091	161	24	343	66	R	FPS	1
9.12	1998-09-20 02:52:52	47.31	11.32	10.0	3.1	237	47	082	069	43	099	333	02	081	84	R	FPS	3, 51
9.13	1999-05-16 10:24:08	47.53	10.43	16.0	2.8	077	28	084	265	62	093	352	17	183	73	R	FPS	1, 52
9.14	1999-08-28 11:49:18	47.35	10.86	15.0	3.4	079	25	081	269	65	094	356	20	188	70	R	FPS	1
9.15	2000-03-04 15:43:19	47.22	9.48	3.0	3.6	234	17	090	054	73	090	144	28	324	62	R	FWI	21
9.16	2000-05-12 13:16:11	47.62	12.93	10.0	3.3	200	47	038	082	64	130	145	10	041	53	R-SS	FPS	1
9.17	2000-09-04 03:48:55	47.46	12.02	6.0	2.6	349	89	-060	080	30	-178	286	39	053	37	N	FPS	1, 52
9.18	2001-06-08 20:45:30	47.30	10.68	5.0	2.7	358	48	-075	157	44	-106	338	79	078	02	N	FPS	1, 52
9.19	2001-08-07 21:55:40	47.29	10.39	7.0	2.7	077	38	078	271	53	099	355	08	217	79	R	FPS	1, 52
9.20	2002-02-28 21:04:37	47.49	11.22	6.2	3.3	221	26	-064	012	66	-102	261	66	112	21	N	FPS	1
9.21	2003-05-08 03:36:08	47.42	11.87	8.0	2.6	244	71	088	071	19	096	336	26	151	64	R	FPS	1, 52
9.22	2003-05-08 03:38:04	47.39	11.76	8.0	2.1	063	52	077	263	40	106	162	06	282	78	R	FPS	1
9.23	2003-05-12 07:51:03	47.40	11.81	5.9	2.8	064	26	081	254	64	094	341	19	174	71	R	FPS	1, 52
9.24	2003-10-29 07:15:29	47.55	11.95	8.0	3.7	289	58	099	093	33	077	013	12	224	76	R	FWI	12
9.25	2003-11-09 12:06:00	47.23	9.61	2.0	2.9	011	80	-034	107	57	-168	324	30	063	16	SS-N	FPS	1, 52
9.26	2004-05-22 11:35:01	47.27	11.77	11.1	2.1	359	66	-018	097	73	-155	320	30	227	05	SS-N	FPS	1, 52
9.27	2004-05-22 12:18:43	47.28	11.81	11.9	3.4	348	46	-028	099	70	-132	324	47	218	15	N-SS	FPS	1
9.28	2004-06-18 08:10:45	47.48	13.36	6.0	3.6	314	62	138	067	53	035	013	05	277	49	R-SS	FWI	12
9.29	2004-06-29 22:25:48	47.45	13.21	8.0	3.1	118	52	101	282	40	077	201	06	075	80	R	FWI	12
9.30	2004-07-22 12:12:27	47.63	12.04	7.3	3.3	124	81	-081	258	13	-135	045	53	206	35	N	FPS	1
9.31	2005-07-04 23:02:35	47.23	10.50	9.0	2.8	249	56	089	071	34	092	340	11	155	79	R	FPS	1, 52
9.32	2006-01-31 22:41:31	47.55	12.06	8.0	2.9	251	47	061	111	50	118	181	02	087	69	R	FPS	1, 52
9.33	2006-05-23 12:57:39	47.34	11.46	8.5	3.2	214	65	-090	034	25	-090	124	70	304	20	N	FPS	1
9.34	2006-09-18 20:49:07	47.29	11.40	7.8	2.7	245	28	057	102	67	106	180	20	039	64	R	FPS	1
9.35	2006-11-08 22:25:14	47.32	11.00	11.5	2.8	250	41	062	105	54	112	179	07	070	71	R	FPS	1
9.36	2006-11-15 23:16:07	47.37	11.49	5.5	2.8	235	68	-017	332	75	-158	195	27	102	04	SS-N	FPS	1
9.37	2007-09-26 15:38:21	47.34	11.46	9.4	2.7	071	13	022	319	85	102	038	39	242	49	R	FPS	1
9.38	2008-02-16 09:52:36	47.27	11.73	12.4	2.7	327	62	-034	075	60	-148	290	43	021	01	SS-N	FPS	1
9.39	2008-03-09 17:28:40	47.44	11.49	6.8	2.6	259	26	081	089	64	094	175	19	008	71	R	FPS	1
9.40	2008-09-10 13:57:26	47.35	11.02	10.0	3.0	263	63	083	098	28	103	358	18	159	71	R	FPS	1
9.41	2008-09-15 17:27:01	47.41	11.28	12.0	2.6	212	47	076	051	45	104	311	01	047	80	R	FPS	1
9.42	2008-12-16 11:22:20	47.26	9.99	6.7	2.7	275	72	076	134	22	127	016	26	165	60	R	FPS	1
9.43	2009-04-01 05:23:54	47.36	12.30	13.1	2.7	261	40	044	134	64	120	203	13	089	59	R-SS	FPS	1
9.44	2010-09-23 12:29:53	47.29	10.37	5.9	2.8	071	36	071	274	56	103	355	10	224	75	R	FPS	1
9.45	2010-10-12 16:53:05	47.35	11.67	11.8	3.1	065	24	056	281	71	104	000	24	212	62	R	FPS	1
9.46	2010-10-19 00:38:28	47.33	11.65	13.6	4.0	258	68	081	100	23	111	354	23	153	66	R	FPS	1
9.47	2010-10-23 12:40:27	47.35	10.87	8.1	3.2	053	37	067	262	56	107	340	10	216	73	R	FPS	1
9.48	2010-10-25 20:00:30	47.24	9.56	5.0	3.1	250	60	108	037	35	062	327	13	198	69	R	FPS	24
9.49	2010-12-01 00:19:39	47.35	11.67	14.1	2.9	083	39	088	265	51	091	354	06	183	84	R	FPS	1
9.50	2011-03-12 08:01:20	47.35	12.44	6.2	3.5	271	50	087	095	40	093	003	05	161	85	R	FPS	1
9.51	2011-11-20 03:24:21	47.42	12.87	2.0	2.9	273	56	085	102	34	097	007	11	166	78	R	FPS	1
9.52	2011-11-20 03:27:55	47.42	12.84	2.0	2.7	091	40	090	271	50	090	001	05	181	85	R	FPS	1
9.53	2012-01-19 21:06:12	47.30	11.44	1.6	2.2	228	36	028	114	74	122	180	22	061	50	R-SS	FPS	1
9.54	2012-03-06 22:23:53	47.43	12.04	8.0	3.0	063	26	069	266	66	100	348	21	194	67	R	FPS	1
9.55	2012-06-26 14:22:49	47.38	11.90	11.9	2.8	064	48	090	244	42	090	154	03	334	87	R	FPS	1
9.56	2012-07-03 09:44:57	47.26	11.60	11.9	2.8	267	81	087	105	09	109	359	36	173	54	R	FPS	1
9.57	2013-01-04 04:25:45	47.28	10.89	9.4	2.3	062	22	071	262	69	097	347	24	185	65	R	FPS	1
9.58	2013-01-27 10:17:46	47.33	11.77	9.9	2.7	066	21	-030	185	80	-108	074	52	290	32	N	FPS	1
9.59	2013-01-31 04:36:26	47.26	11.70	8.5	2.8	084	34	086	268	56	092	357	11	187	79	R	FPS	1
9.60	2013-04-18 13:29:29	47.52	12.02	8.0	2.7	222	51	087	046	39	093	314	06	116	84	R	FPS	1
9.61	2013-04-20 12:21:32	47.24	10.09	2.0	3.4	243	49	046	119	57	129	182	04	086	58	R-SS	FWI	25
9.62	2013-05-08 13:31:05	47.27	11.75	9.8	2.8	268	52	082	100	38	100	003	07	142	81	R	FPS	1
9.63	2013-05-22 03:21:46	47.55	12.67	2.0	3.2	017	46	024	270	73	133	329	16	222	44	R-SS	FPS	1
9.64	2013-08-09 10:44:07	47.27	11.46	7.2	3.7	069	39	077	265	52	100	348	07	217	79	R	FPS	1
9.65	2013-08-16 23:00:21	47.52	12.68	2.0	2.6	239	53	056	108	49	127	353	03	088	63	R-SS	FPS	1
9.66	2013-10-29 22:59:27	47.28	10.77	1.7	2.8	201	47	053	069	54	123	136	04	039	64	R-SS	FPS	1
9.67	2015-12-29 20:54:15	47.60	12.88	8.1	3.0	044	16	042	273	79	102	353	33	198	54	R	FPS	1
9.68	2016-02-26 18:50:13	47.30	10.93	7.4	2.4	248	69	083	089	22	109	344	24	146	65	R	FPS	1, 55
9.69	2016-07-22 11:28:21	47.33	11.17	11.9	3.0	254	56	066	113	41	121	001	08	111	69	R	FPS	1, 55
9.70	2016-07-22 11:58:01	47.33	11.17	12.6	3.2	274	69	085	109	22	104	008	24	175	66	R	FPS	1, 55
9.71	2016-07-22 12:06:19	47.33	11.17	10.9	2.8	273	54	080	110	37	103	010	09	148	78	R	FPS	1, 55
9.72	2016-07-25 12:05:29	47.33	11.17	12.1	3.5	271	61	087	098	29	096	004	16	173	74	R	FPS	1, 55
9.73	2016-07-30 20:40:03	47.26	11.75	9.3	2.8	268	57	071	121	37	117	012	11	134	71	R	FPS	1, 55
9.74	2016-09-16 06:29:14	47.33	11.67	11.1	2.8	043	10	061	253	81	095	339	36	169	54	R	FPS	1, 55
9.75	2016-10-07 09:42:18	47.53	11.01	7.5	2.5	259	72	073	123	25	131	002	25	145	60	R	FPS	1, 55
9.76	2017-01-12 17:21:44	47.32	11.44	2.0	2.7	257	62	076	104	31	114	357	16	138	70	R	FPS	1, 55
9.77	2017-07-15 23:33:22	47.34	11.47	7.4	2.5	189	71	-089	006	19	-093	101	64	279	26	N	FPS	1
	10: Zone of lower crustal seismicity																	
10.01	1996-04-27 06:59:46	47.30	10.00	35.0	3.6	204	53	080	041	38	103	301	08	076	79	R	FPS	1
10.02	1999-10-28 04:54:22	47.39	9.90	8.0	3.1	170	28	-054	311	68	-107	193	63	054	21	N	FPS	1, 52
10.03	2001-03-14 10:37:18	47.35	9.58	30.0	2.9	010	76	-010	102	80	-166	327	17	236	03	SS	FPS	26
10.04	2004-04-18 03:21:05	47.62	9.66	31.0	3.0	215	90	000	125	90	180	170	00	080	00	SS	FPS	27
10.05	2011-01-27 01:24:19	47.48	9.84	31.0	3.5	221	81	-004	311	86	-171	176	09	086	03	SS	FPS	16

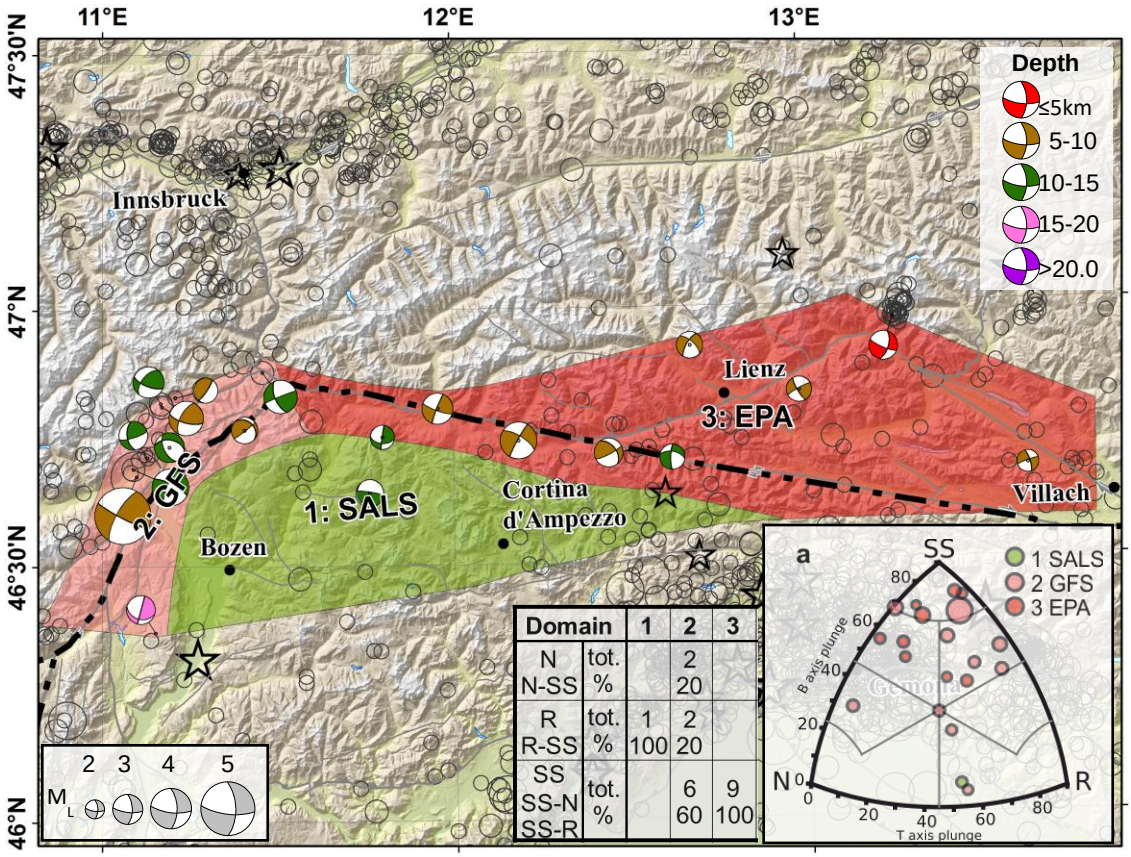


Figure S3. Seismicity and focal mechanisms in domains 1, 2, 3: While the interior of the Dolomites Indenter reveals a very low seismicity, the areas close to the Giudicarie Fault System and the Pustertal-Gailtal fault yielded strike-slip solutions with one plane parallel to general fault trend. Ternary diagram after Álvarez-Gómez, 2014.

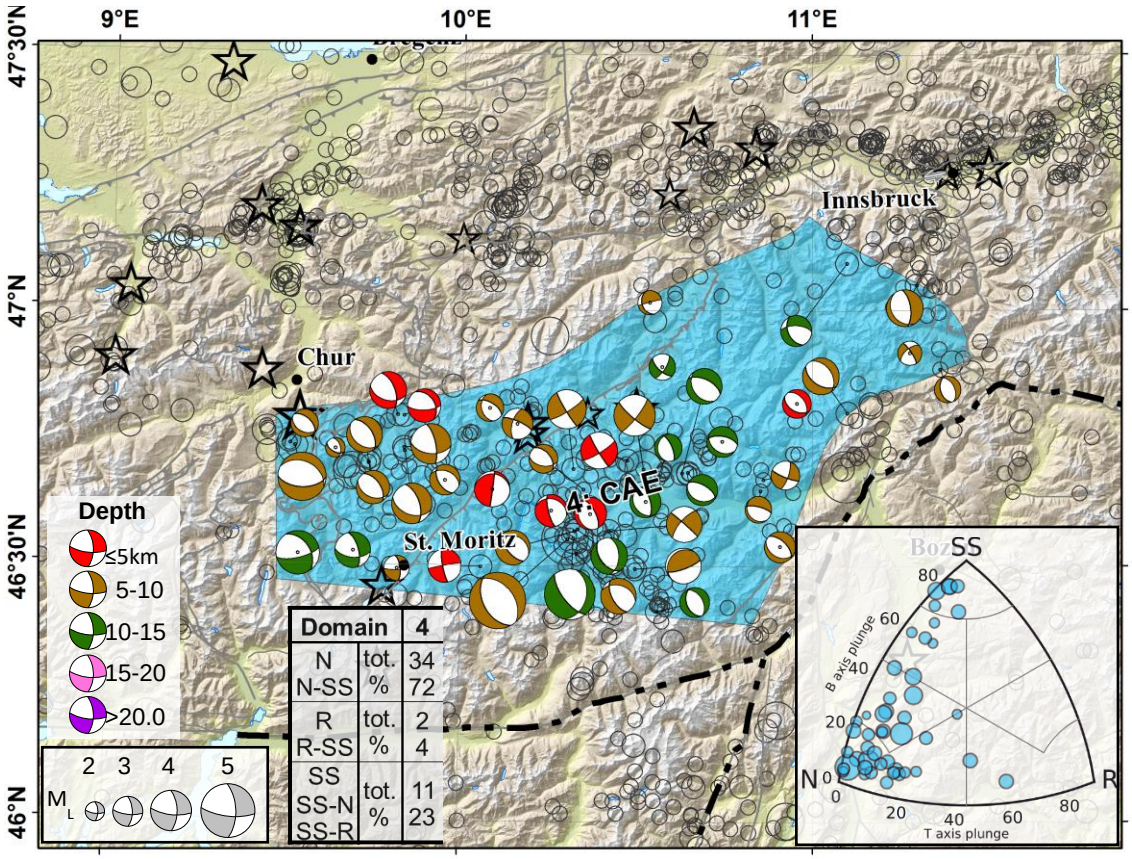


Figure S4. Seismicity and focal mechanisms in domain 4: Transtension west of the Dolomites Indenter, Extension northwest of the Indenter corner. Ternary diagram after Álvarez-Gómez, 2014.

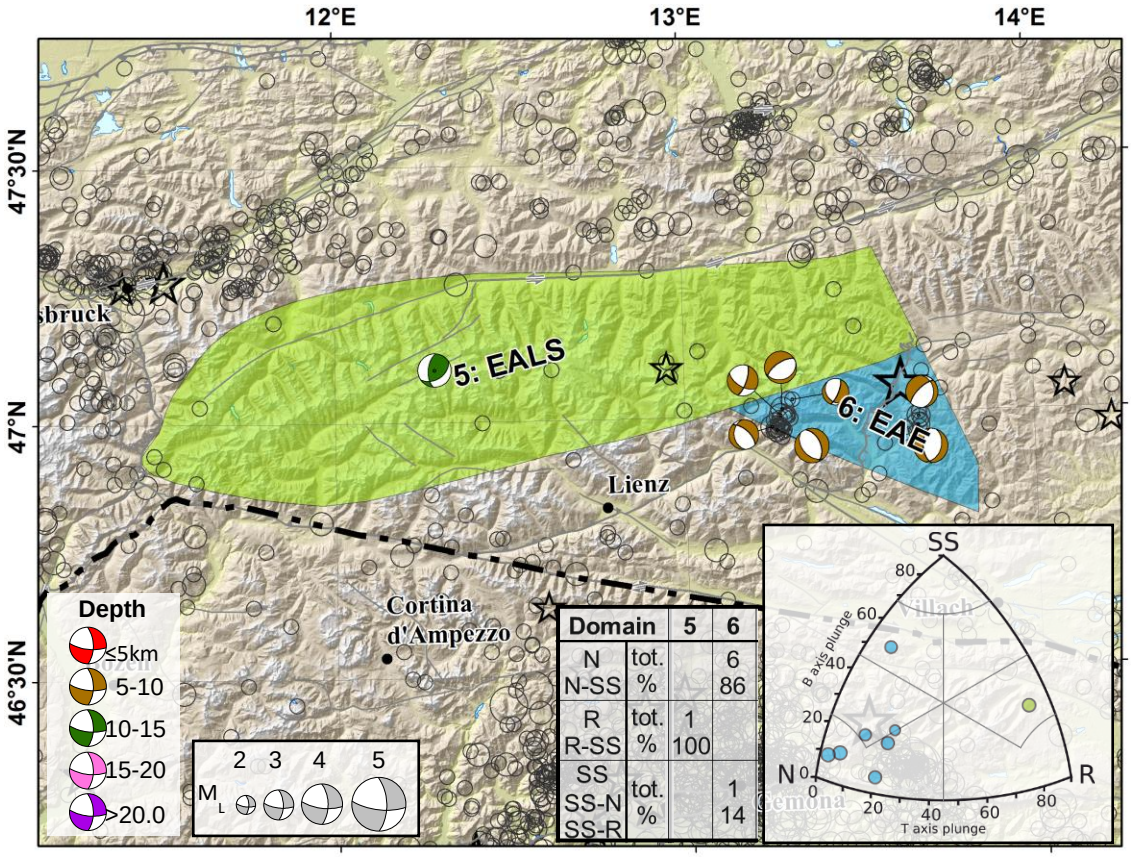


Figure S5. Seismicity and focal mechanisms in domains 5 and 6: Domain 5, which partially coincides with the Tauern Window, shows almost aseismic behavior. At the southeastern margin of the Tauern Window ENE to ESE directed extension occurs (domain 6). Ternary diagram after Álvarez-Gómez, 2014.

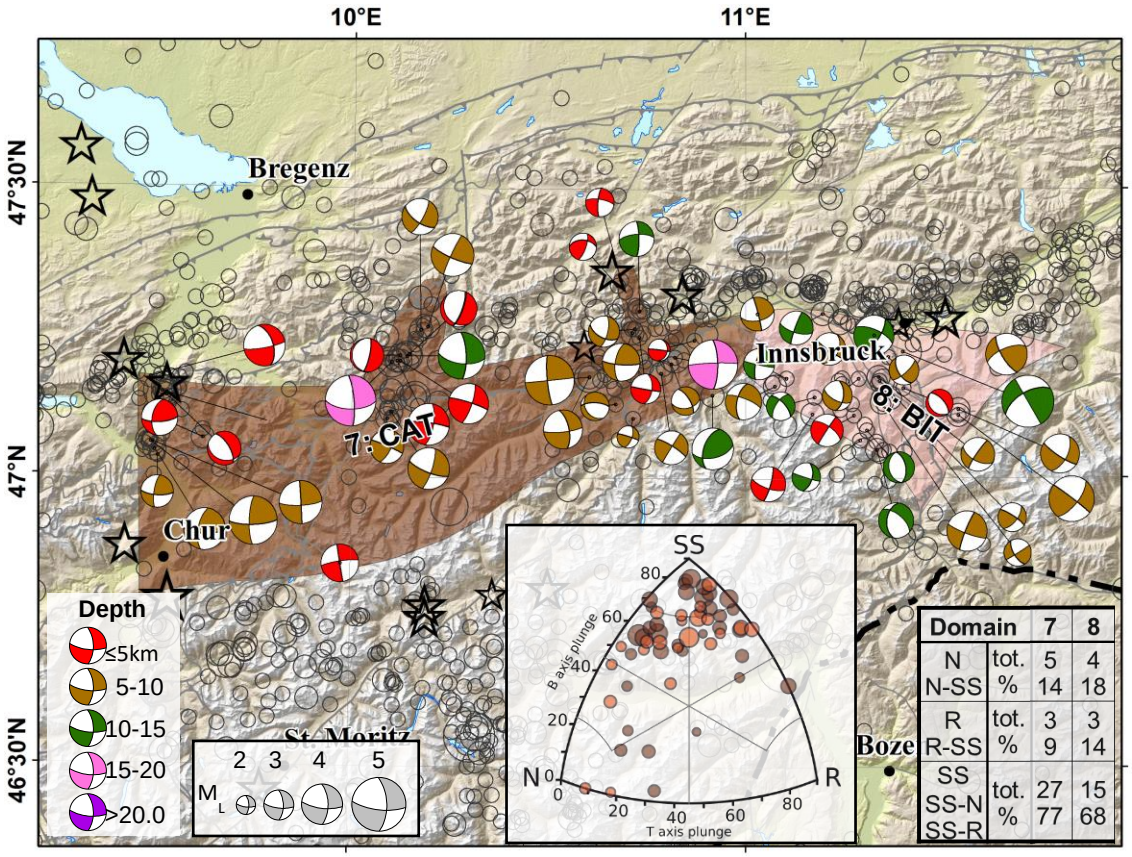


Figure S6. Domains 7 (central Alpine transition domain) and 8 (Brenner-Inntal transfer zone). Both domains are dominated by strike-slip faulting, but slightly different orientations of the nodal planes. In domain 7 N-S and E-W striking nodal planes prevail, while domain 8 show mainly NE-SW and NW-SE striking planes. Additionally, orogen-parallel extension is common in domain 8 and rare in domain 7. Ternary diagram after Álvarez-Gómez, 2014.

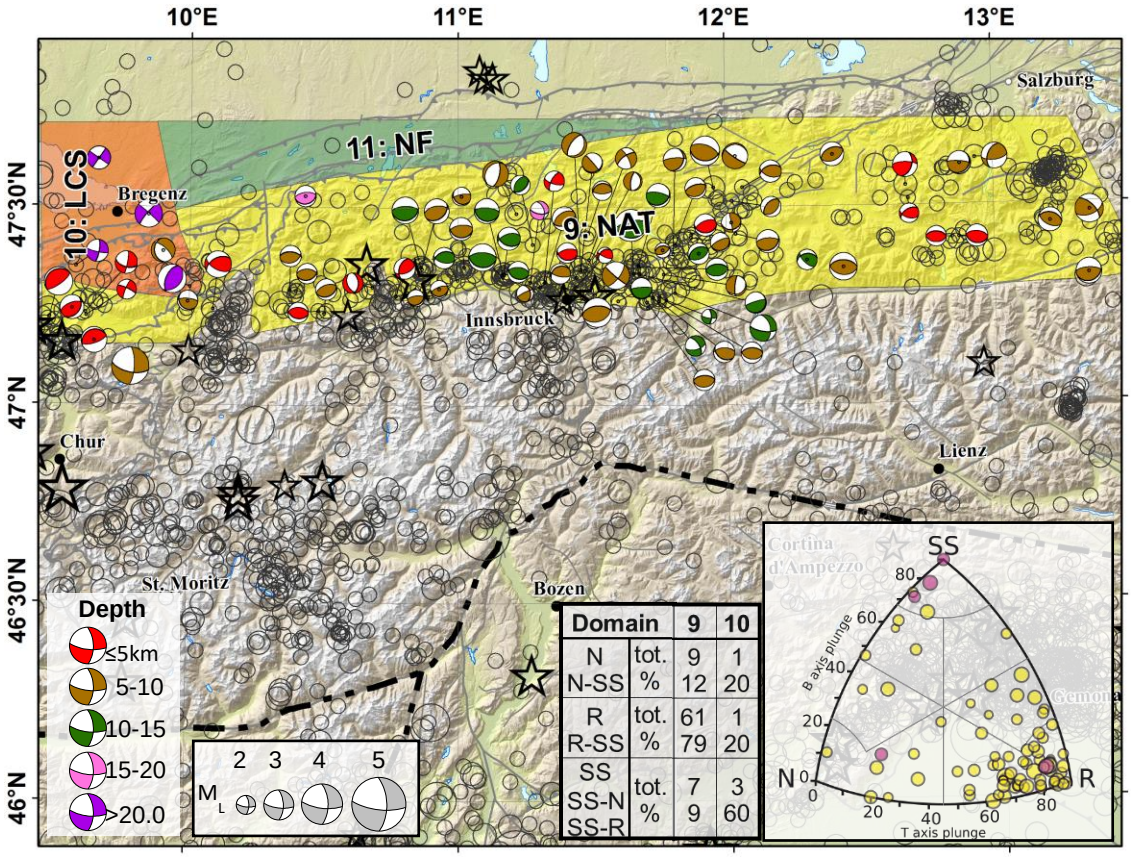
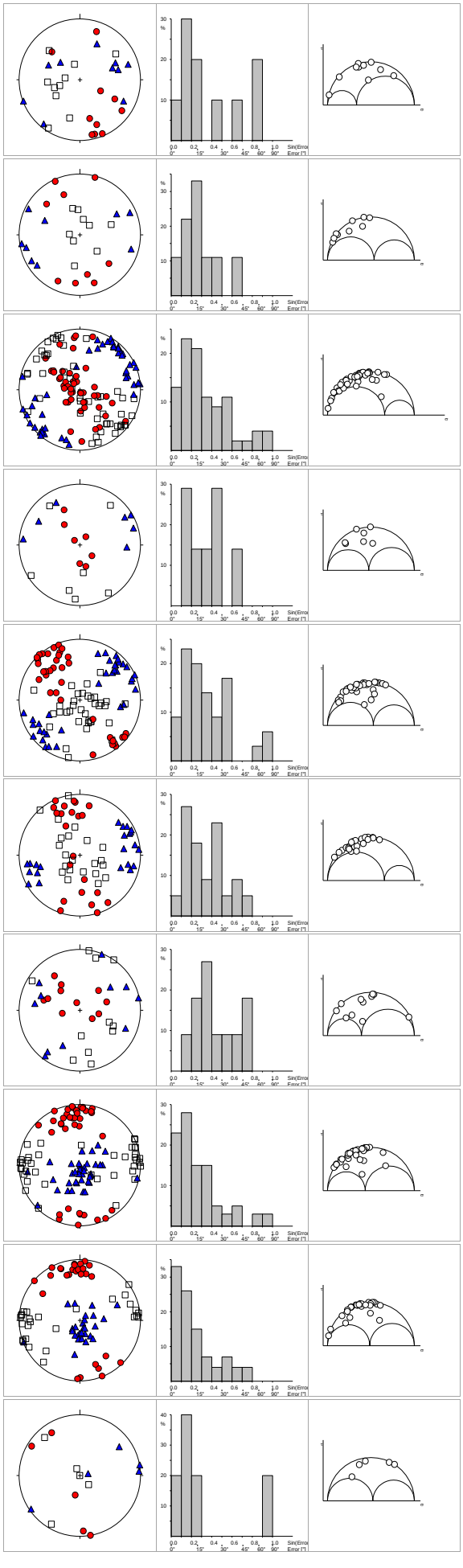


Figure S7. Domains 9 (north Alpine thrust domain), 10 (zone of lower crustal seismicity) and 11 (northern foreland). Domain 9 shows majorly thrusting, with occasional strike-slip activity south of the Lower Inn Valley and two spots of orogen-parallel extension. Domain 10 shows prevailingly strike-slip events of NE-SW and NW-SE trend and one thrust. Some of the events (shown in purple) occurred in the lower European crust. The northern foreland (11) is characterized by a very low seismicity. We could not obtain a focal mechanism. Ternary diagram after Álvarez-Gómez, 2014.

Figure S8 (following page). Graphical representation of the stress calculations obtained from the NDA method {Spang, 1972 #153}. a. Lower hemisphere Plot of the P-, B- and T-axes. b. Error histogram. Error-axis: angular intervals, calculated as the difference between the observed and the calculated lineation for the given orientation of the principal strain axes. %-axis: Relative number of solutions which fall into the defined angular error interval. c. Normalized Mohr circle. Numerical values: nData: number of input mechanisms; θ: angle between the fault slip and the maximum principal strain axis (equivalent to α in the SI calculation); strain rate: equivalent to the stress rate in the SI calculation, λ…orientation of the principal strain axes. Strain reg.: Strain regime, equivalent to stress regime, see main publication for details.

a. PBT-and Strain axes b. Err. Histogr. c. Norm. Mohr Circ.



			Azim	Plunge
Domain 2 .				
nData	10	Lambda 1	160	18
Theta	45	Lambda 2	294	65
Strain Rate	0,3338	Lambda 3	064	17
neg. sense for	1	dataset(s):		
2.10				
Strain reg.	transpression			
Domain 3 .				
nData	9	Lambda 1	169	12
Theta	45	Lambda 2	350	78
Strain Rate	0,5362	Lambda 3	259	00
neg. sense for	0	dataset(s):		
err=40° for 3.02				
Strain reg.	strike-slip			
Domain 4 .				
nData	47	Lambda 1	259	86
Theta	45	Lambda 2	143	02
Strain Rate	0,6581	Lambda 3	053	04
neg. sense for	2	dataset(s):		
4.01;4.26				
Strain reg.	transtension			
Domain 6 .				
nData	7	Lambda 1	189	83
Theta	45	Lambda 2	350	06
Strain Rate	0,4754	Lambda 3	080	02
neg. sense for	0	dataset(s):		
err=44° for 6.05				
Strain reg.	extension			
Domain 7 .				
nData	35	Lambda 1	321	13
Theta	45	Lambda 2	162	76
Strain Rate	0,5287	Lambda 3	052	05
neg. sense for	0	dataset(s):		
err=69° for 7.11;7.15 err=59° for 7.28				
Strain reg.	strike-slip			
Domain 8 .				
nData	22	Lambda 1	346	10
Theta	45	Lambda 2	187	80
Strain Rate	0,6544	Lambda 3	077	04
neg. sense for	0	dataset(s):		
err=47° for 8.08				
Strain reg.	transtension			
Domain 9 Ex				
nData	11	Lambda 1	340	76
Theta	45	Lambda 2	139	13
Strain Rate	0,3911	Lambda 3	230	05
neg. sense for	0	dataset(s):		
err=45° for 9.20				
Strain reg.	extension - radial ext.			
Domain 9 TE				
nData	39	Lambda 1	351	10
Theta	45	Lambda 2	261	02
Strain Rate	0,4343	Lambda 3	163	80
neg. sense for	0	dataset(s):		
err=55° for 9.26; 69° for 9.36				
Strain reg.	thrust			
Domain 9 TW				
nData	27	Lambda 1	346	10
Theta	45	Lambda 2	256	01
Strain Rate	0,4865	Lambda 3	160	80
neg. sense for	0	dataset(s):		
err=53° for 9.02				
Strain reg.	thrust			
Domain 10 .				
nData	5	Lambda 1	159	02
Theta	45	Lambda 2	257	73
Strain Rate	0,5223	Lambda 3	068	16
neg. sense for	0	dataset(s):		
err=71° for 9.01				
Strain reg.	strike-slip			

	Azimuth of σ_H/λ_H [°]				Stress/strain ratio ϕ_σ/ϕ_λ				Average rotational misfit [°]
Domain	SI	FMSI	NDA	Max Δ	SI	FMSI	NDA	Max Δ	FMSI
2. GFS	161	156	158	05	0.44	0.35	0.33	0.11	5.7
3. EPA	175	158	169	17	0.32	0.80	0.54	0.48	3.5
4. CAE	144	152	143	09	0.70	0.55	0.66	0.15	5.7
6. EAE	166	166	170	04	0.26	0.30	0.48	0.21	3.1
7. CAT	144	134	141	10	0.41	0.45	0.53	0.12	5.9
8. BIT	165	155	166	12	0.53	0.40	0.65	0.25	5.6
9 NA-Ex	139	118	142	24	0.19	0.50	0.39	0.31	6.1
9 NA-TE	174	149	172	27	0.12	0.75	0.43	0.63	5.5
9 NA-TW	168	163	166	05	0.31	0.40	0.49	0.17	4.8
10. LCS	150	136	158	23	0.37	0.85	0.52	0.48	1.5

Table S2. Numerical results of the stress/strain calculations with the SI (Vavryčuk, 2014), FMSI (Gephart, 1990) and NDA methods (Spang, 1972). The first row denominates the stress subdomain, followed by the azimuths of maximum horizontal stress/strain σH/λH calculated by the three different methods and the maximum difference between the results (Δ). Next, we compare the stress/strain ratios φσ/ φλ and list their maximum difference. In the last row, we show the angular rotational misfit of the nodal plane dataset.

Data Set S1. Catalogue of fault plane solutions of western Austria and adjacent regions: 2017TC004867_DS01_Datasheets_05.pdf

Contains input parameters for calculations, numeric and graphic results, focal mechanism classification scheme, pick classification scheme, velocity model details.

Data Set S2. Earthquake catalog of western Austria and adjacent regions: 2017TC004867_DS02_Earthquake_Catalog.xlsx

We compiled the earthquake catalog used for this study from several sources. The data are attached in xlsx format. For contributing agencies, see acknowledgements of main text. Published events referred to are listed in the reference section of the main text.

Data Set S3. Station list: 2017TC004867_DS03_StationList.xlsx

Station list in xlsx format.

Data Set S4. Relocation data: 2017TC004867_DS04_RelocationData.xlsx.

Relocation data in xlsx format.

Data Set S5. Velocity model: 2017TC004867_DS05_TauP_VelMod.

1D velocity model used for angular calculations in TauP format (Crotwell and Owens, 2016).

Data Set S6. Basic data for all focal mechanisms: 2017TC004867_DS06_FocalMechanisms.xlsx.

Table S1 of supporting information in xlsx format plus the active focal plane as determined by the SI calculation.

Data Set S7. Additional data for fault plane solutions calculated for this study: 2017TC004867_DS07_FPS_Details.xlsx.

Numerical data shown in Figure S1 of supporting information in xlsx format.

Data Set S8. Results of stress and strain calculations: 2017TC004867_DS08_Stress_Calculations.xlsx

Numerical data shown in Figure 6 of main publication in xlsx format. Additionally, also numerical results from other calculation methods not shown in Figure 6 and from neighboring areas with published results of stress calculations shown in Figure 7.