

## Appendix 1. List of radiometric ages used for probability plots (Fig. 5)

Locality/Unit	Lithology	Age	Method	Mineral	Reference
<i>Northern Vosges magmatism</i>					
Neuntelstein	diorite	331 ± 11	K–Ar	Am	Edel et al. 1986
Neuntelstein	diorite	326 ± 5	K–Ar	Am	Altherr et al. 2000
Neuntelstein	diorite	331 ± 3	Ar–Ar	Am	Altherr et al. 2000
Neuntelstein	Am-bearing enclave	327 ± 10	K–Ar	Am	Edel et al. 1986
Muckenbach	diorite	326 ± 11	K–Ar	Bt + Am	Edel et al. 1986
Muckenbach	diorite	284 ± 18	K–Ar	Am, altered	Edel et al. 1986
Muckenbach	diorite	282 ± 23	K–Ar	Am	Edel et al. 1986
Hohwald	granodiorite	336 ± 11	K–Ar	Bt, chloritized	Edel et al. 1986
Hohwald	granodiorite	297 ± 10	K–Ar	Bt, chloritized	Edel et al. 1986
Hohwald	granodiorite	284 ± 9	K–Ar	Pl	Edel et al. 1986
Hohwald	granodiorite	331 ± 12	Ar–Ar	Am	Boutin et al. 1995
Hohwald	granodiorite	346 ± 4	U–Pb	Zrn	Edel et al. 2013
Hohwald	granodiorite	326 ± 2	U–Pb	Zrn	Edel et al. 2013
Champ du Feu	granite	318 ± 3	U–Pb	Zrn	Cocherie 2007
Champ du Feu	granite	363 ± 11	U–Th–Pb	Mnz	Cocherie 2007
Champ du Feu	granite	328 ± 6	K–Ar	Am	Altherr et al. 2000
Champ du Feu	granite	330 ± 3	Ar–Ar	Am	Altherr et al. 2000
Serva granite	enclave	327 ± 10	K–Ar	Am	Boutin et al. 1995
Waldersbach	granite	335 ± 4	K–Ar	Bt	Altherr et al. 2000
Waldersbach	enclave	329 ± 4	K–Ar	Am + Bt	Altherr et al. 2000
Waldersbach	enclave	329 ± 4	Ar–Ar	Am + Bt	Altherr et al. 2000
Natzwiller	granite	336 ± 1	Ar–Ar	Bt	Boutin et al. 1995
Natzwiller	granite	338 ± 2	Ar–Ar	Bt	Montigny & Thuizat 1989
Natzwiller	granite	330 ± 4	K–Ar	Bt, chloritized	Altherr et al. 2000
Natzwiller	granite	312 ± 2	U–Pb	Zrn	Cocherie 2007
Andlau	granite	328 ± 4	K–Ar	Bt, chloritized	Altherr et al. 2000
Senones	granite	325 ± 4	K–Ar	Am	Altherr et al. 2000
Senones	granite	328 ± 4	Ar–Ar	Am	Altherr et al. 2000
Windstein	granodiorite	334 ± 1	Ar–Ar	Bt	Boutin et al. 1995
Windstein	granodiorite	334 ± 2	U–Pb	Zrn	Reischmann & Anthes 1996
Weiler	ignimbrite	325 ± 4	Rb–Sr	WR	Reischmann & Anthes 1996
Weiler	ignimbrite	327 ± 21	Sm–Nd	WR	Reischmann & Anthes 1996
Kagenfels	granite	284 ± 9	K–Ar	Bt	Edel et al. 1986
Kagenfels	granite	286 ± 10	K–Ar	Bt	Montigny & Thuizat 1989
Kagenfels	granite	329 ± 2	Ar–Ar	Bt	Boutin et al. 1995
Kagenfels	granite	334 ± 8	K–Ar	Bt	Hess et al. 1995
Kagenfels	granite	336 ± 6	K–Ar	Bt	Hess et al. 1995
Kagenfels	granite	335 ± 4	Ar–Ar	Bt	Hess et al. 1995
Kagenfels	granite	331 ± 6	K–Ar	Bt	Hess et al. 1995
Kagenfels	granite	333 ± 6	K–Ar	Bt	Hess et al. 1995
Kagenfels	granite	324 ± 3	Ar–Ar	Bt	Hess et al. 1995
Kagenfels	granite	323 ± 7	K–Ar	Bt	Hess et al. 1995
Kagenfels	granite	328 ± 7	K–Ar	Bt	Hess et al. 1995
Kagenfels	granite	331 ± 2	Ar–Ar	Bt	Hess et al. 1995
Kagenfels	granite	330 ± 5	U–Pb	Zrn	Hess et al. 1995
Kagenfels	lamprophyre	328 ± 8	K–Ar	Bt	Hess et al. 1995
Kagenfels	lamprophyre	335 ± 7	K–Ar	Bt	Hess et al. 1995
Kagenfels	lamprophyre	324 ± 2	Ar–Ar	Bt	Hess et al. 1995
Saint-Nabor	ignimbrite	334 ± 4	U–Pb	Zrn	Edel et al. 2013
Nideck	rhyolite	297 ± 9	K–Ar	Bt	Boutin et al. 1995
Nideck	rhyolite	299 ± 9	K–Ar	Bt	Boutin et al. 1995
Nideck	rhyolite	293 ± 8	K–Ar	Bt, chloritized	Boutin et al. 1995
Nideck	rhyolite	299 ± 7	K–Ar	Bt	Lippolt & Hess 1983
Nideck	rhyolite	294 ± 5	Ar–Ar	Bt	Lippolt & Hess 1983

### Central Vosges magmatism

Crêtes	durbachite	332 ± 3	U-Pb	Zrn	Schulmann et al. 2002
Crêtes	granite	333 ± 1	Ar-Ar	Bt	Boutin et al. 1995
Crêtes	microgranite	339 ± 2	U-Pb	Zrn	Schaltegger et al. 1996
Crêtes	granite	338 ± 2	U-Pb	Ttn	Schaltegger et al. 1996
Crêtes	granite	353 ± 5	U-Pb	Zrn	Tabaud 2012
Crêtes	granite	337 ± 2	U-Pb	Zrn	Tabaud 2012
Crêtes	granite	351 ± 5	U-Pb	Zrn	Tabaud 2012
Crêtes	granite	337 ± 3	U-Pb	Zrn	Tabaud 2012
Bramont	granite	336 ± 11	K-Ar	Bt	Boutin et al. 1995
Bramont	granite	342 ± 11	K-Ar	Bt	Boutin et al. 1995
Bramont	granite	337 ± 4	U-Pb	Zrn	Tabaud 2012
Vic	granite	331 ± 5	Ar-Ar	Bt	Boutin et al. 1995
Tholy	granite	334 ± 11	K-Ar	Bt	Boutin et al. 1995
Tholy	granite	334 ± 4	Ar-Ar	Bt, chloritized	Boutin et al. 1995
Thannekirch	granite	326 ± 1	U-Pb	Zrn	Kratinova et al. 2007
Châtenois	granite	335 ± 10	K-Ar	Bt	Boutin et al. 1995
Châtenois	granite	330 ± 10	K-Ar	Bt	Boutin et al. 1995
Bilstein	granite	334 ± 2	Ar-Ar	Ms	Boutin et al. 1995
Brézouard	granite	332 ± 8	Ar-Ar	Ms	Boutin et al. 1995
Brézouard	granite	329 ± 2	U-Pb	Zrn	Schulmann et al. 2002
Dambach	granite	323 ± 10	K-Ar	Ms	Boutin et al. 1995
Fondamental	granite	319 ± 6	U-Pb	Zrn	Tabaud 2012
Fondamental	granite	324 ± 4	U-Pb	Mnz	Tabaud 2012
Trois-Epis	migmatite	328 ± 10	K-Ar	Bt	Boutin et al. 1995
Trois-Epis	granitoid gneiss	328 ± 4	U-Pb	Zrn	Schaltegger et al. 1999
Kaysersberg	migmatite	333 ± 10	K-Ar	Bt	Boutin et al. 1995
Kaysersberg	migmatitic granite	326 ± 5	U-Pb	Zrn	Schaltegger et al. 1999

### Southern Vosges magmatism

Ballons Nord	diorite	356 ± 2	Ar-Ar	Am	Boutin et al. 1995
Ballons Nord	monzodiorite	345 ± 3	U-Pb	Zrn	Tabaud 2012
Ballons Sud	monzodiorite	345 ± 1	U-Pb	Zrn	Tabaud 2012
Sewen	monzonite	337 ± 19	K-Ar	Am + Chl	Boutin et al. 1995
Ballons	monzogranite	335 ± 13	K-Ar	Am	Boutin et al. 1995
Ballons	monzogranite	339 ± 2	U-Pb	Ttn	Schaltegger et al. 1996
Ballons	monzogranite	336 ± 4	U-Pb	Zrn	Tabaud 2012
Corravillers	granite	331 ± 5	Ar-Ar	Bt	Boutin et al. 1995
Corravillers	granite	338 ± 4	U-Pb	Zrn	Tabaud 2012
Molkenrain	rhyolite	337 ± 11	K-Ar	Am	Boutin et al. 1995
Molkenrain	rhyolite	335 ± 3	Ar-Ar	Am	Boutin et al. 1995
Molkenrain	rhyolite	340 ± 2	U-Pb	Zrn	Schaltegger et al. 1996

### Central Vosges metamorphism

Monotonous unit	gneiss	330 ± 14	Ar-Ar	Bt	Boutin et al. 1995
Varied unit	kinzigite	335 ± 4	U-Pb	Zrn	Schaltegger et al. 1999
Varied unit	leucosome	337 ± 3	U-Pb	Zrn	Schaltegger et al. 1999
Varied unit	Bt-Sil gneiss	326 ± 11	U-Pb	Zrn	Schaltegger et al. 1999
Varied unit	Bt-Sil gneiss	335 ± 1	U-Pb	Zrn, Mnz	Schaltegger et al. 1999
Varied unit	kinzigite	327 ± 12	Ar-Ar	Bt	Boutin et al. 1995
Varied unit	amphibolite	339 ± 20	Ar-Ar	Am	Boutin et al. 1995
Varied unit	amphibolite	340 ± 4	Ar-Ar	Chl	Boutin et al. 1995
Varied unit	gneiss	339 ± 4	U-Pb	Zrn	Skrzypek et al. 2012
Varied unit	gneiss	342 ± 11	U-Pb	Zrn	Skrzypek et al. 2012
Felsic granulite unit	felsic granulite	335 ± 4	U-Pb	Zrn	Schaltegger et al. 1999
Felsic granulite unit	felsic granulite	335 ± 8	U-Pb	Zrn	Schaltegger et al. 1999
Felsic granulite unit	felsic granulite	327 ± 8	U-Pb	Zrn	Schaltegger et al. 1999
Felsic granulite unit	felsic granulite	342 ± 4	U-Pb	Zrn	Skrzypek et al. 2012
Felsic granulite unit	felsic granulite	343 ± 2	U-Pb	Zrn	Skrzypek et al. 2012
Felsic granulite unit	felsic granulite	346 ± 4	U-Pb	Zrn	Skrzypek et al. 2012

## References

- ALTHERR, R., HOLL, A., HEGNER, E., LANGER, C. & KREUZER, H. 2000. High-potassium, calc-alkaline I-type plutonism in the European Variscides: northern Vosges (France) and northern Schwarzwald (Germany). *Lithos*, **50**, 51-73.
- BOUTIN, R., MONTIGNY, R. & THUIZAT, R. 1995. Chronologie K-Ar et  $^{39}\text{Ar}/^{40}\text{Ar}$  du métamorphisme et du magmatisme des Vosges. Comparaison avec les massifs varisques avoisinants. *Géologie de la France*, **1**, 3-25.
- COCHERIE, A. 2007. Datations U-Pb (laser-ICPMS-MC) sur zircons des Vosges (projet carte 50 000). *Note N° MMA/ISO-2007/262*, 15p.
- EDEL, J.-B., MONTIGNY, R., ROYER, J.-Y., THUIZAT, R. & TROLAND, F. 1986. Paleomagnetic investigations and K-Ar dating on the Variscan plutonic massif of the Champ du Feu and its volcanic-sedimentary environment, northern Vosges, France. *Tectonophysics*, **122**, 165-185.
- EDEL, J.-B., SCHULMANN, K., SKRZYPEK, E. & COCHERIE, A. 2013. Tectonic evolution of the European Variscan belt constrained by palaeomagnetic, structural and anisotropy of magnetic susceptibility data from the Rhenohercynian magmatic arc (Northern Vosges, Eastern France). *Journal of the Geological Society, London*, in press.
- HESS, J. C., LIPPOLT, H. J. & KOBER, B. 1995. The age of the Kagenfels granite (northern Vosges) and its bearing on the intrusion scheme of late Variscan granitoids. *Geologische Rundschau*, **84**, 568-577.
- KRATINOVÁ, Z., SCHULMANN, K., EDEL, J.-B. & JEŽEK, J. 2007. Model of successive granite sheet emplacement in transtensional setting: Integrated microstructural and anisotropy of magnetic susceptibility study. *Tectonics*, **26**, TC6003.
- LIPPOLT, H. J. & HESS, J. C. 1983. Isotopic evidence for the stratigraphic position of the Saar-Nahe Rotliegend volcanism I.  $^{40}\text{Ar}/^{40}\text{K}$  and  $^{40}\text{Ar}/^{39}\text{Ar}$  investigations. *Neues Jahrbuch für Geologie und Paläontologie. Monatshefte*, **12**, 713-730.
- MONTIGNY, R. & THUIZAT, R. 1989. K-Ar and  $^{40}\text{Ar}-^{39}\text{Ar}$  ages on crystalline rocks of the Vosges (France). *Terra abstracts*, **1**, 352.
- REISCHMANN, T. & ANTHES, G. 1996. Geochronology of the Mid-German crystalline rise west of the River Rhine. *Geologische Rundschau*, **85**, 761-774.
- SCHALTEGGER, U., FANNING, C. M., GÜNTHER, D., MAURIN, J. C., SCHULMANN, K. & GEBAUER, D. 1999. Growth, annealing and recrystallization of zircon and preservation of monazite in high-grade metamorphism: conventional and in situ U-Pb isotope, cathodoluminescence and microchemical evidence. *Contributions to Mineralogy and Petrology*, **134**, 186-201.
- SCHALTEGGER, U., SCHNEIDER, J.-L., MAURIN, J.-C. & CORFU, F. 1996. Precise U-Pb chronometry of 345–340 Ma old magmatism related to syn-convergence extension in the Southern Vosges (Central Variscan Belt) *Earth and Planetary Sciences Letters* **144**, 403-419.
- SCHULMANN, K., SCHALTEGGER, U., JEŽEK, J., THOMPSON, A. B. & EDEL, J. B. 2002. Rapid burial and exhumation during orogeny: Thickening and synconvergent exhumation of thermally weakened and thinned crust (Variscan orogen in Western Europe). *American Journal of Science*, **302**, 856-879.
- SKRZYPEK, E., ŠTÍPSKÁ, P. & COCHERIE, A. 2012. The origin of zircon and the significance of U-Pb ages in high-grade metamorphic rocks: a case study from the Variscan orogenic root (Vosges Mountains, NE France). *Contributions to Mineralogy and Petrology*, **164**, 935-957.
- TABAUD, A.-S. 2012. *Le magmatisme des Vosges: conséquence des subductions paléozoïques (datation, pétrologie, géochimie, ASM)*. Ph.D. thesis, Université de Strasbourg.