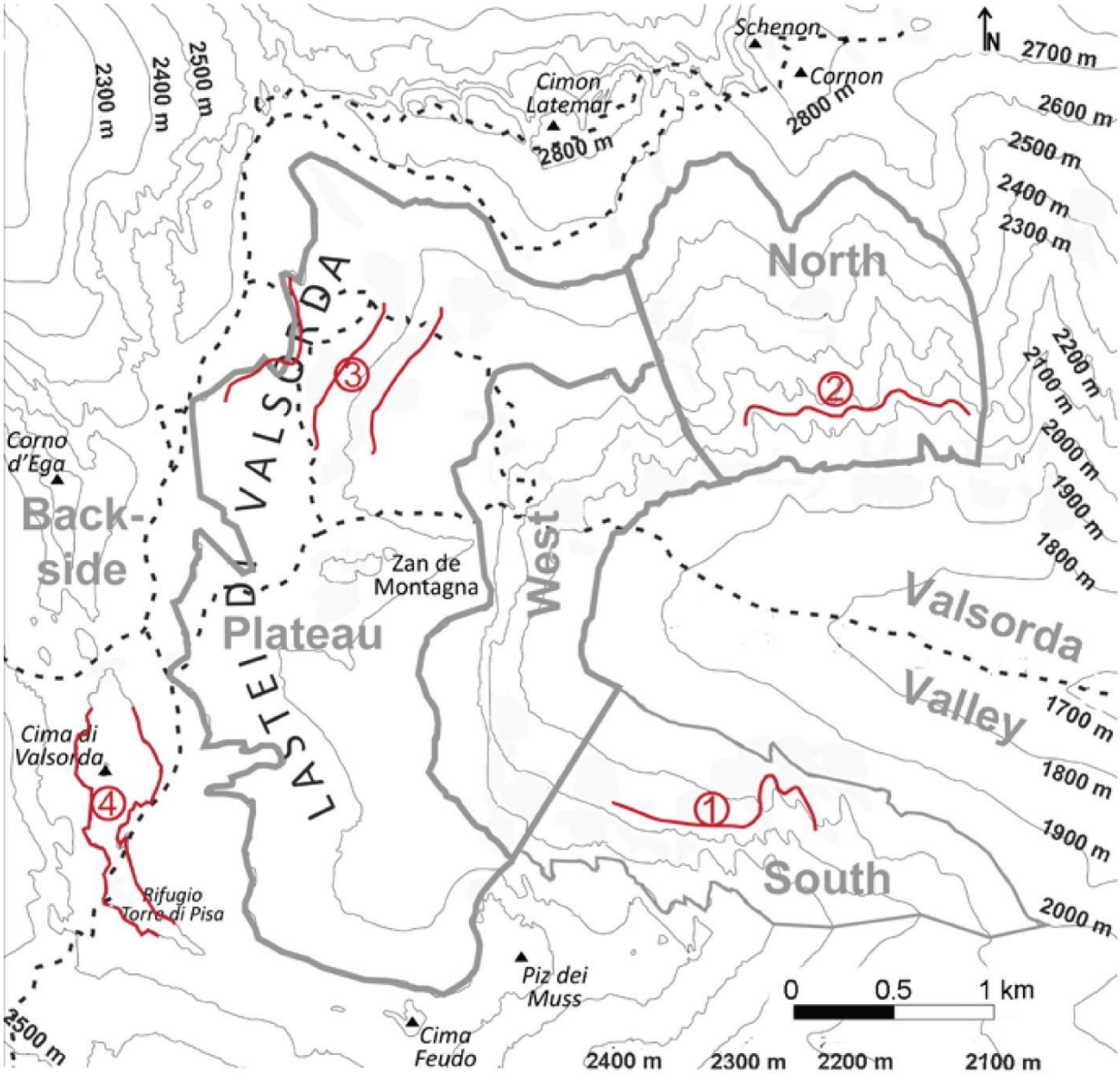
Appendix A: Topographic map of the Latemar platform, the red lines indicate the sampled transects.



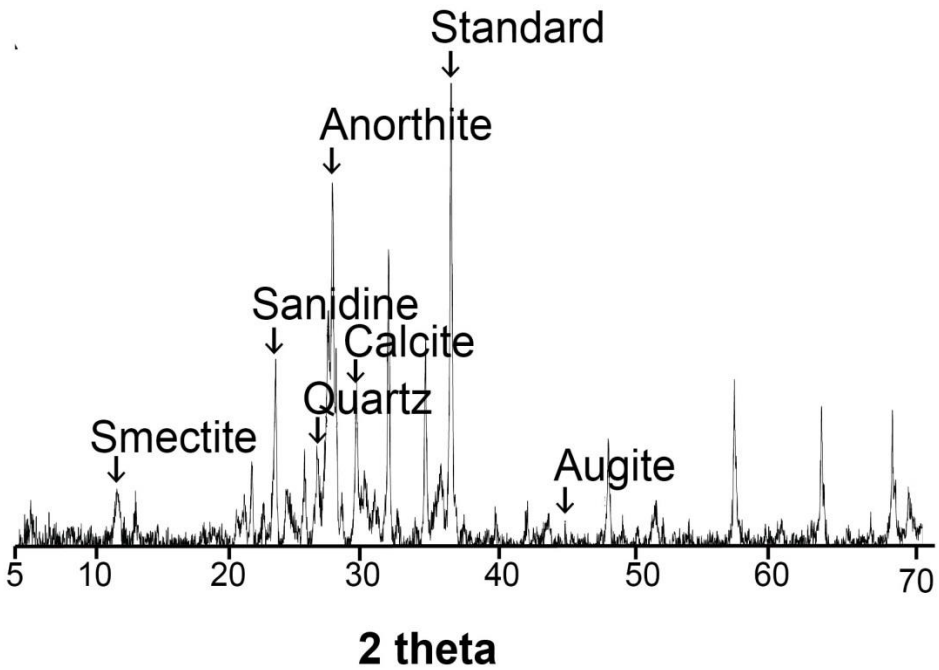
Appendix B: Estimated $FeCO_3$-content based on the d_{104}-values from XRD-diffractograms.

Measurement	d_{104} (Å)	Wt.% $FeCO_3$
1	2.8853	>0.5
2	2.8867	1.50
3	2.8915	5.30
4	2.8917	5.46
5	2.8971	10.02

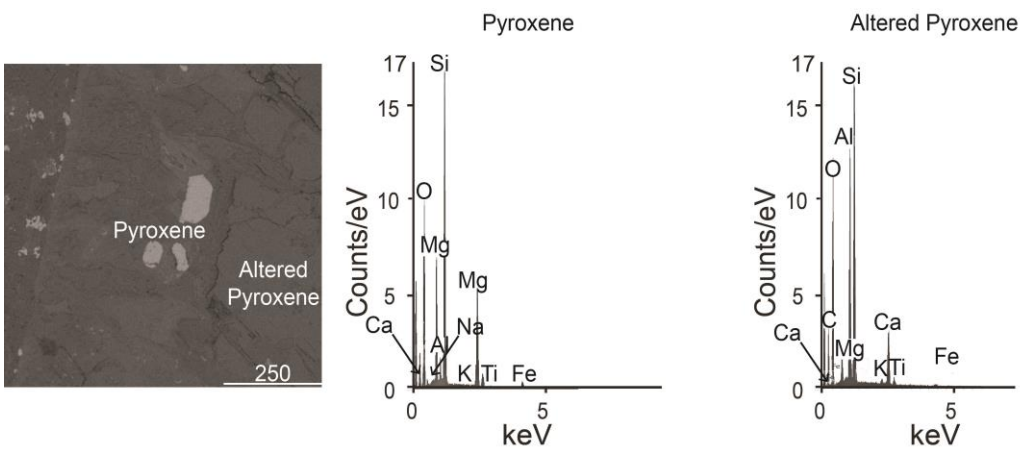
Appendix C: EMPA-results for carbonate phases (in wt.% oxides).

SiO_2	Al_2O_3	MgO	ZnO	CaO	FeO	MnO
2.27	0.81	1.96	0.05	53.48	2.73	0.71
4.14	0.91	2.06	0.03	53.08	2.62	0.63
0.73	0.28	1.43	0.01	52.71	0.47	0.99
6.35	2.07	1.56	0.06	48.49	1.27	0.05
0.04	0.00	0.14	0.02	59.48	0.04	0.07
3.74	1.37	2.73	0.04	50.97	0.65	0.06
0.02	0.01	14.31	0.035	36.98	8.03	0.33

Appendix D: Example XRD-diffractogram of the mafic dikes cross-cutting the platform



Appendix E: Additional BSE image (left) and SEM-EDS spectra (right) illustrating the difference between unaltered and altered pyroxene.



Appendix F: The fluid speciation of major components after dike-seawater interaction, but prior to dolomitization at 40°C, 60°C and 80°C and 0.02 GPa.

40°C					
Species	**mol/kg H_2O**	**Species**	**mol/kg H_2O**	**pH**	
Ca^{+2}	$1.03 \cdot 10^{-2}$	$SiO_2(aq)$	$9.99 \cdot 10^{-5}$		8.43
K^{+}	$1.02 \cdot 10^{-2}$	Cl^{-}	0.546		
Mg^{+2}	$5.31 \cdot 10^{-2}$	Fe^{+2}	$2.84 \cdot 10^{-4}$		

Na^{+}	0.468	Al^{+3}	$2.25 \cdot 10^{-4}$		
SO_4^{-2}	$2.8 \cdot 10^{-2}$	HCO^{-3}	$2.36 \cdot 10^{-3}$		
60°C					
Species	**mol/kg H_2O**	**Species**	**mol/kg H_2O**	**pH**	
Ca^{+2}	$1.03 \cdot 10^{-2}$	$SiO_2(aq)$	$9.99 \cdot 10^{-5}$		8.08
K^{+}	$1.02 \cdot 10^{-2}$	Cl^{-}	0.546		
Mg^{+2}	$5.31 \cdot 10^{-2}$	Fe^{+2}	$1.64 \cdot 10^{-4}$		
Na^{+}	0.468	Al^{+3}	$1.64 \cdot 10^{-4}$		
SO_4^{-2}	$2.8 \cdot 10^{-2}$	HCO^{-3}	$2.36 \cdot 10^{-3}$		
80°C					
Species	**mol/kg H_2O**	**Species**	**mol/kg H_2O**	**pH**	
Ca^{+2}	$1.03 \cdot 10^{-2}$	$SiO_2(aq)$	$9.99 \cdot 10^{-5}$		7.71
K^{+}	$1.02 \cdot 10^{-2}$	Cl^{-}	0.546		
Mg^{+2}	$5.31 \cdot 10^{-2}$	Fe^{+2}	$1.30 \cdot 10^{-4}$		
Na^{+}	0.468	Al^{+3}	$1.30 \cdot 10^{-4}$		
SO_4^{-2}	$2.8 \cdot 10^{-2}$	HCO^{-3}	$2.36 \cdot 10^{-3}$		