Origin of graphic texture by magma mixing-induced undercooling in the Borjuri diorite pluton, Mikir Massif, Northeast India

Tribujjal Prakash[1], Pallabi Basumatary[1], Bibhuti Gogoi1[1,*]

[1]Department of Geology, Cotton University, Guwahati, Assam 781001, India

*bibhuti.gogoi.baruah@gmail.com

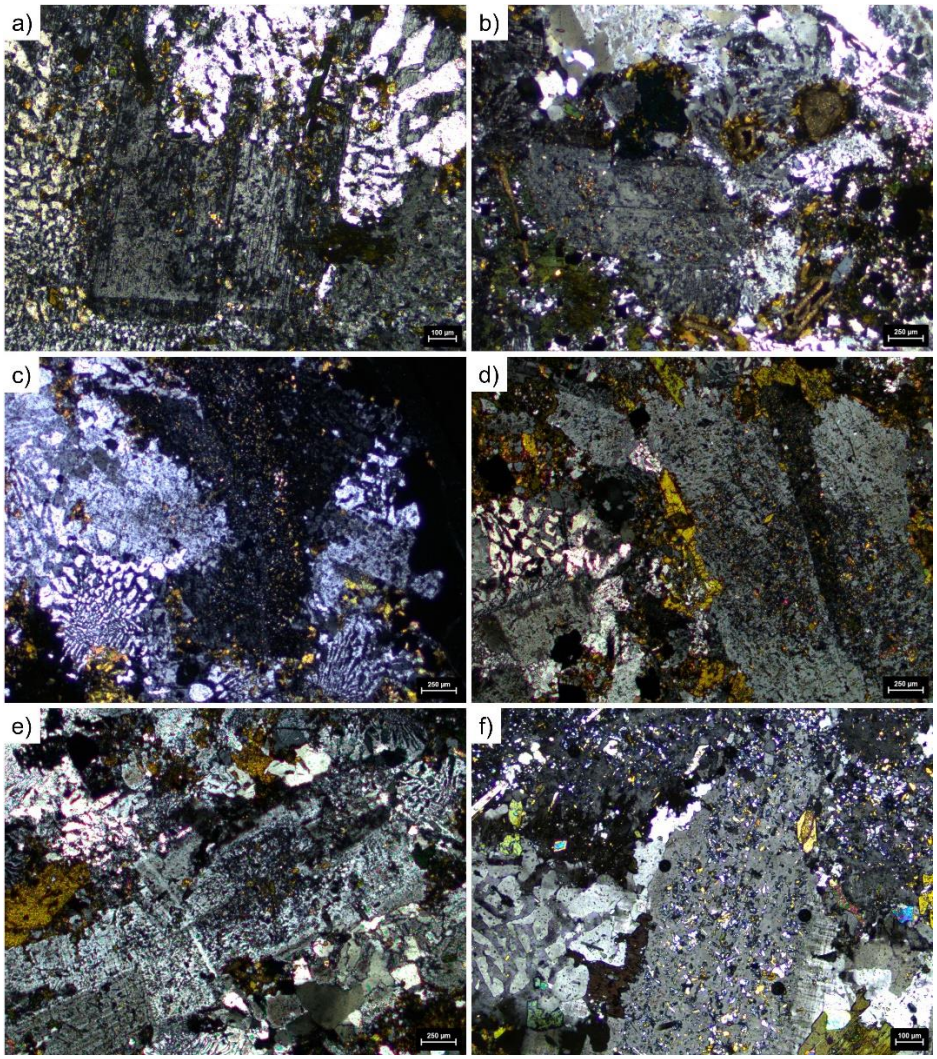

Figure S1 Transmitted light photomicrographs (crossed polars) (a) Resorbed plagioclase phenocryst (b) Sieve texture in partially resorbed plagioclase phenocryst (c-e) Sieve textured crystals of plagioclase with adjacent graphic intergrowths (f) Rounded and resorbed plagioclase core mantled by K-feldspar depicting anti–rapakivi texture.

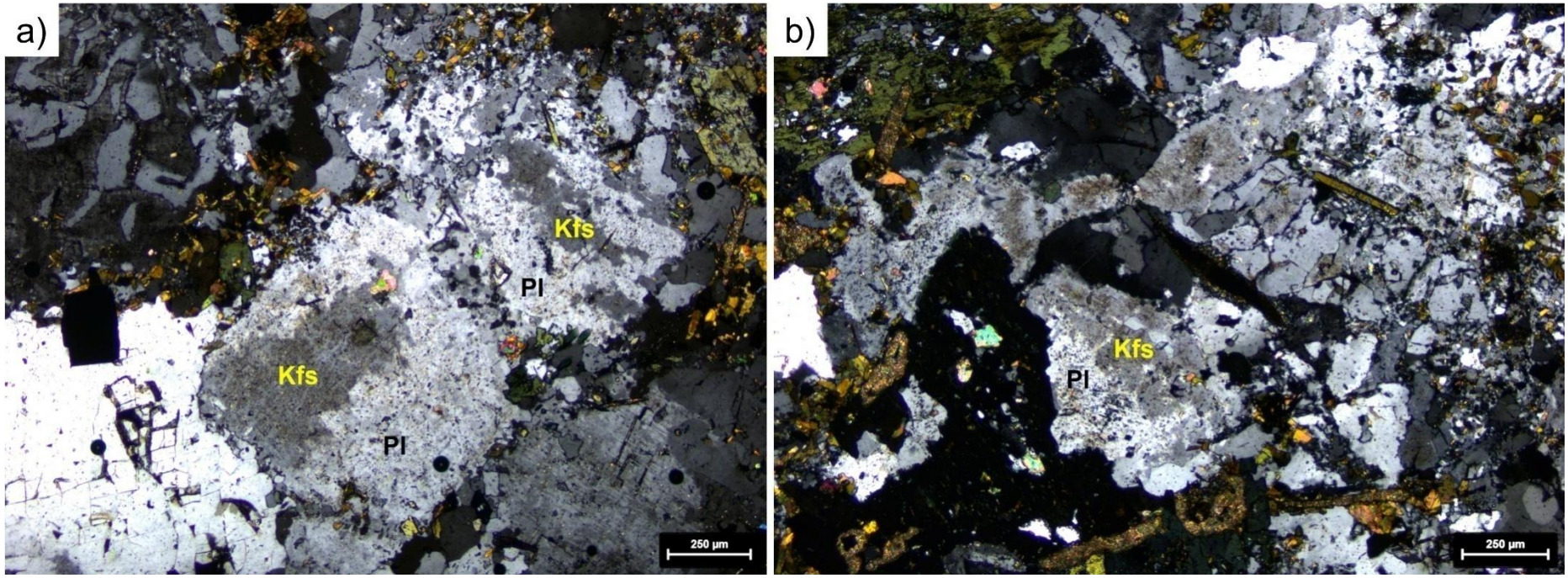

Figure S2 Photomicrographs of the Borjuri diorites. Crossed polars, transmitted light. (a-b) Resorbed K–feldspar grains mantled by plagioclase displaying rapakivi texture. Mineral abbreviation: Kfs = K-feldspar, Pl = plagioclase.

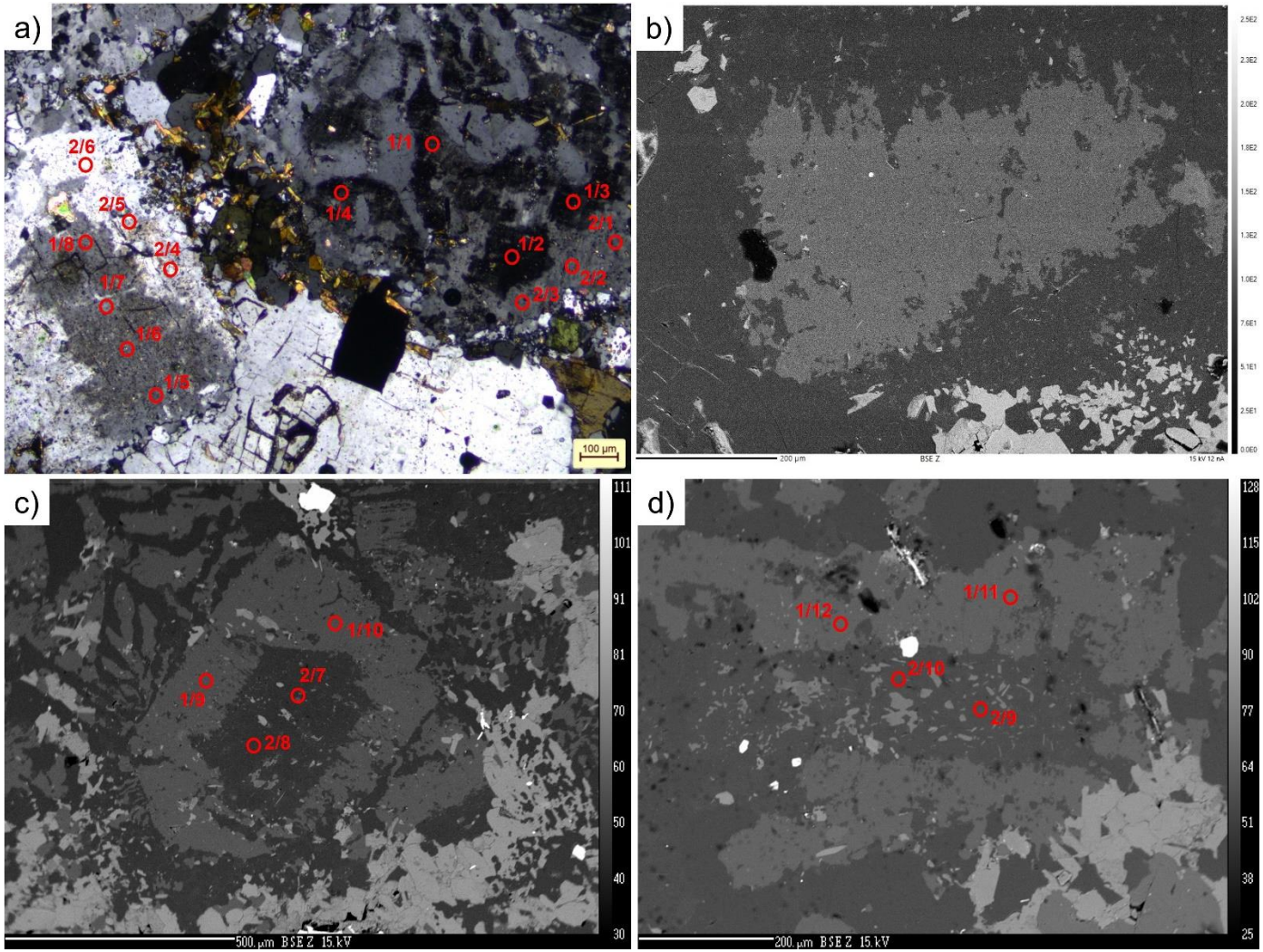

Figure S3 Transmitted light photomicrographs (crossed polars) (a) and BSE images of different mantled feldspars from the Borjuri diorites (b-d). (a) Rapakivi feldspar and quart–K-feldspar intergrowths mantled by plagioclase (b) BSE image of rapakivi feldspar shown in figure 'a' (c-d) BSE images showing distinct anti–rapakivi feldspars. The red hollow circles indicate EPMA spot analysis and the numbers indicate data points.

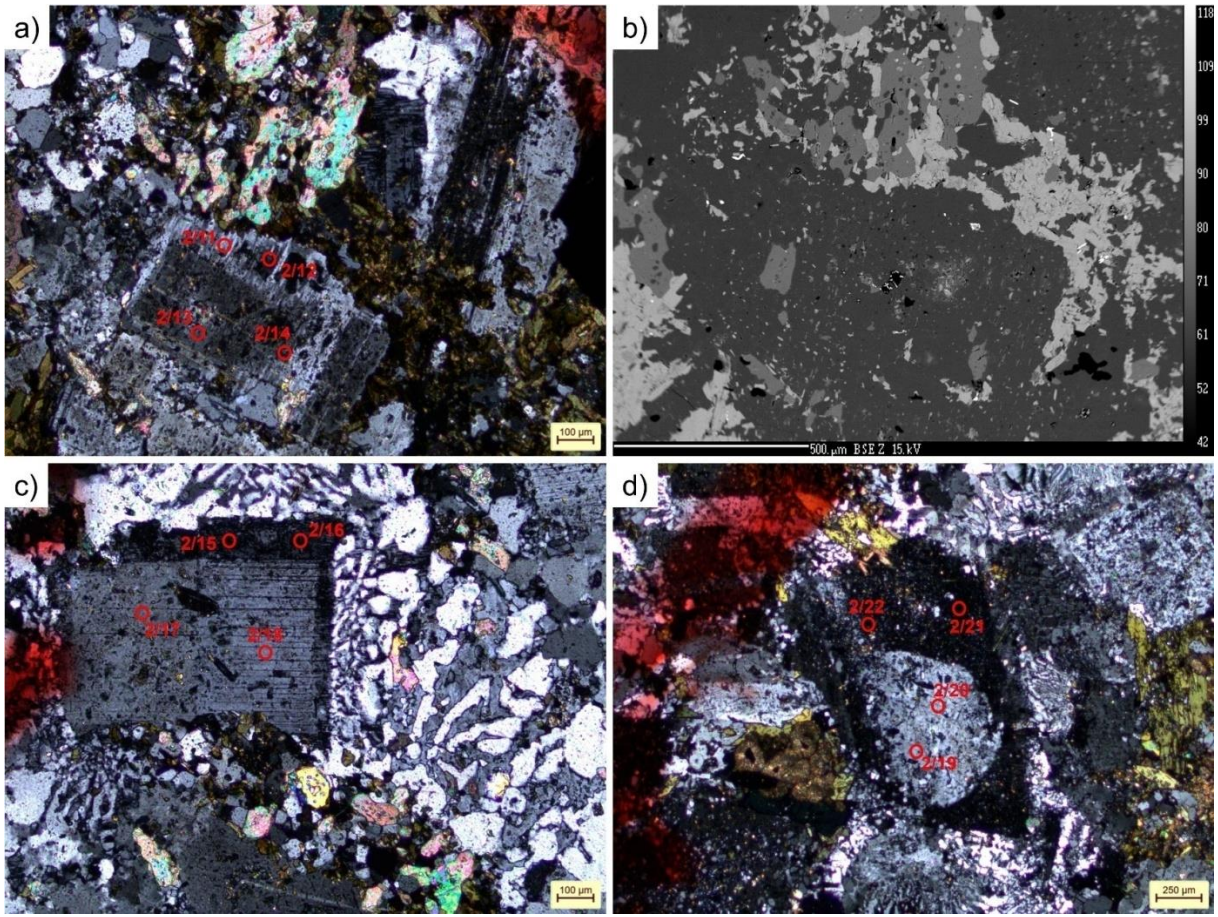

Figure S4 Transmitted light photomicrographs (crossed polars) (a, c, d) and BSE image of mantled plagioclase presented in figure ‘a’ (b). (a-b) Transmitted light and BSE images showing non–dendritic plagioclase mantled by dendritic plagioclase (c) Plagioclase mantled by dendritic plagioclase with adjoining graphic intergrowths (d) Rounded and resorbed plagioclase core with subhedral plagioclase outer shell, denoting zoned plagioclase. The red hollow circles indicate EPMA spot analysis and the numbers indicate data points.

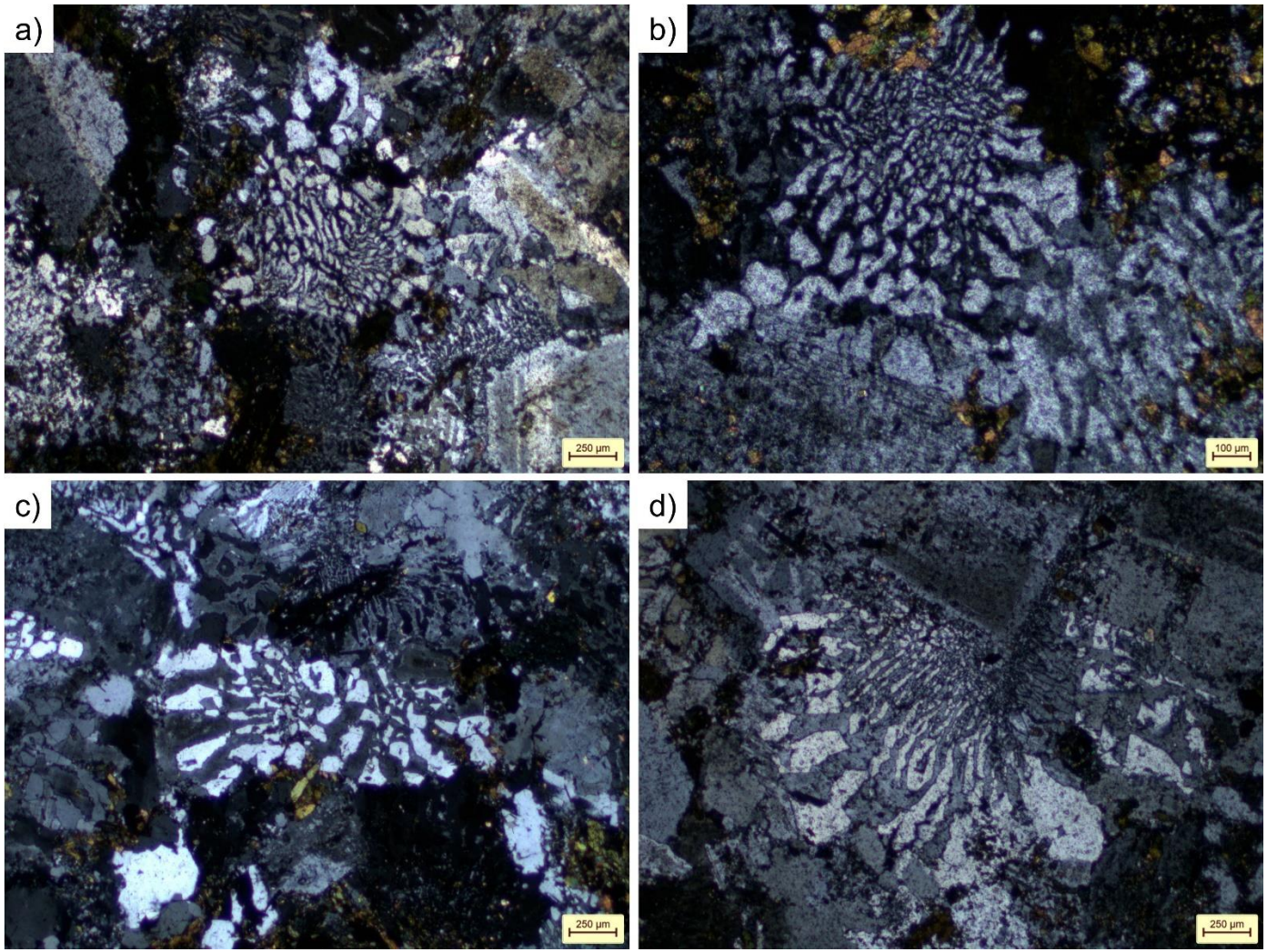

Figure S5 Transmitted light photomicrographs of quartz-K-feldspar intergrowth morphologies (crossed polars) (a) Graphic texture with rod-shaped quartz (b) Triangular arrow–headed grains with lobate quartz–feldspar interface (c) Anhedral quartz grains with irregular boundaries (d) Plagioclase phenocryst in association with quartz-K-feldspar intergrowth.

Table S1 Representative electron microprobe analysis of K-feldspar from the Borjuri diorites.

Data point	1/1.	1/2.	1/3.	1/4.	1/5.	1/6.	1/7.	1/8.	1/9.	1/10.	1/11.	1/12.
SiO_2	63.83	64.46	64.30	64.21	64.07	63.47	63.87	63.67	63.94	63.65	64.19	64.69
TiO_2	0.00	0.00	0.00	0.00	0.03	0.02	0.00	0.00	0.00	0.22	0.00	0.00
Al_2O_3	18.05	18.15	18.22	18.04	17.75	17.76	17.92	17.50	18.04	17.94	17.89	17.93
Cr_2O_3	0.01	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.07	0.07	0.09	0.00
FeO	0.00	0.00	0.00	0.06	0.19	0.03	0.18	0.17	0.00	0.01	0.01	0.00
MnO	0.00	0.05	0.03	0.00	0.00	0.00	0.00	0.06	0.00	0.03	0.00	0.00
MgO	0.02	0.00	0.00	0.01	0.02	0.00	0.02	0.00	0.00	0.00	0.01	0.02
CaO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.00
Na_2O	0.61	0.59	0.61	0.51	0.53	0.44	0.59	0.53	0.42	0.62	0.33	0.47
K_2O	15.02	15.20	14.86	15.05	15.53	15.71	15.30	15.42	14.67	14.40	14.96	14.60
P_2O_5	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.04	0.00	0.00	0.07
BaO	0.71	0.70	0.72	0.73	NA	1.40	1.93	1.27	0.95	0.81	0.51	0.39
Cl	0.04	0.03	0.00	0.03	0.00	0.02	0.00	0.00	0.00	0.03	0.00	0.00
F	0.01	0.00	0.01	0.00	0.00	0.08	0.00	0.12	0.01	0.01	0.01	0.00
Total	98.31	99.23	98.77	98.65	98.15	98.92	99.80	98.74	98.13	97.99	98.01	98.18
Calculation based on 8 O												
Si	3.00	3.00	3.00	3.01	3.01	2.99	2.99	3.00	3.01	3.00	3.02	3.03
Ti	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Al	1.00	1.00	1.00	1.00	0.98	0.99	0.99	0.97	1.00	1.00	0.99	0.99
Cr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fe	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00
Mn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ca	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00

Na	0.06	0.05	0.06	0.05	0.05	0.04	0.05	0.05	0.04	0.06	0.03	0.04
K	0.90	0.90	0.89	0.90	0.93	0.94	0.91	0.93	0.88	0.87	0.90	0.87
P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ba	0.01	0.01	0.01	0.01	0.00	0.03	0.04	0.02	0.02	0.01	0.01	0.01
Cl	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
F	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.00	0.00	0.00	0.00
Total	4.98	4.98	4.96	4.97	4.98	5.01	5.00	5.00	4.95	4.96	4.95	4.94
An(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03	0.00	0.00
Ab(%)	5.81	5.57	5.87	4.90	4.97	4.08	5.49	4.94	4.17	6.08	3.24	4.66
Or(%)	94.19	94.43	94.13	95.10	95.03	95.92	94.51	95.06	95.83	92.89	96.76	95.34

NA = Not available

Table S2 Representative electron microprobe analysis of plagioclase from the Borjuri diorites.

Data point	2/1.	2/2.	2/3.	2/4.	2/5.	2/6.	2/7.	2/8.	2/9.	2/10.	2/11.
SiO_2	68.44	66.66	67.30	67.10	66.89	67.53	66.95	67.30	63.98	65.56	67.61
TiO_2	0.02	0.00	0.00	0.00	0.05	0.00	0.00	0.01	0.00	0.02	0.00
Al_2O_3	20.76	19.91	19.59	19.53	19.76	19.36	19.96	19.60	21.84	20.97	19.88
Cr_2O_3	0.00	0.00	0.00	0.07	0.01	0.03	0.00	0.00	0.00	0.00	0.03
FeO	0.03	0.05	0.16	0.23	0.23	0.06	0.13	0.00	0.08	0.11	0.19
MnO	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.02
MgO	0.01	0.00	0.00	0.01	0.02	0.00	0.01	0.00	0.00	0.02	0.01
CaO	1.48	1.11	0.66	0.57	1.00	0.44	0.77	0.69	3.29	2.01	0.68
Na_2O	10.56	11.31	11.08	11.41	11.36	11.73	10.80	11.20	9.90	10.56	12.09
K_2O	0.05	0.04	0.13	0.44	0.29	0.06	0.05	0.05	0.07	0.14	0.03
P_2O_5	0.00	0.01	0.00	0.00	0.03	0.04	0.08	0.00	0.03	0.08	0.07
BaO	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.02	0.01	0.00
Cl	0.01	0.00	0.02	0.02	0.02	0.02	NA	NA	NA	NA	0.00
F	0.00	0.00	0.00	0.01	0.00	0.01	NA	NA	NA	NA	0.00
Total	101.38	99.10	98.94	99.39	99.66	99.28	98.81	98.85	99.21	99.58	100.61
Calculation based on 8 O											
Si	2.95	2.95	2.98	2.97	2.95	2.98	2.96	2.98	2.85	2.90	2.95
Ti	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Al	1.05	1.04	1.02	1.02	1.03	1.01	1.04	1.02	1.15	1.09	1.02
Cr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fe	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01
Mn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ca	0.07	0.05	0.03	0.03	0.05	0.02	0.04	0.03	0.16	0.10	0.03

Na	0.88	0.97	0.95	0.98	0.97	1.00	0.93	0.96	0.85	0.91	1.02
K	0.00	0.00	0.01	0.02	0.02	0.00	0.00	0.00	0.00	0.01	0.00
P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cl	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	4.96	5.02	4.99	5.03	5.03	5.02	4.98	4.99	5.01	5.01	5.05
An(%)	7.17	5.13	3.16	2.62	4.57	2.02	3.78	3.28	15.45	9.44	3.01
Ab(%)	92.54	94.65	96.09	94.97	93.86	97.65	95.93	96.43	84.15	89.77	96.83
Or(%)	0.29	0.22	0.74	2.41	1.58	0.33	0.29	0.28	0.39	0.78	0.16

NA = Not available

Table S2 (continued)

Data point	2/12.	2/13.	2/14.	2/15.	2/16.	2/17.	2/18.	2/19.	2/20.	2/21.	2/22.
SiO_2	67.92	69.64	67.40	66.05	61.11	67.27	67.72	66.90	66.26	66.15	67.00
TiO_2	0.03	0.03	0.00	0.02	0.25	0.00	0.14	0.00	0.00	0.00	0.00
Al_2O_3	19.82	18.48	19.88	19.33	21.23	19.69	19.49	19.78	20.56	20.25	20.19
Cr_2O_3	0.00	0.01	0.00	0.01	0.00	0.03	0.63	0.02	0.04	0.00	0.00
FeO	0.35	0.06	0.11	0.26	3.61	0.96	0.12	0.04	0.06	0.13	0.02
MnO	0.00	0.00	0.03	0.00	0.02	0.00	0.00	0.00	0.00	0.10	0.00
MgO	0.00	0.02	0.01	0.03	0.22	0.08	0.01	0.00	0.00	0.00	0.00
CaO	0.73	0.69	0.86	0.74	2.92	1.29	0.67	0.72	1.49	1.24	1.30
Na_2O	11.97	10.99	11.99	11.44	9.11	10.32	10.78	11.31	10.60	10.80	10.39
K_2O	0.05	0.07	0.04	0.11	1.36	0.25	0.41	0.03	0.08	0.08	0.09
P_2O_5	0.00	0.00	0.03	0.08	0.06	0.04	0.07	0.00	0.10	0.07	0.03
BaO	0.00	0.00	0.05	0.05	0.04	0.00	0.03	0.04	0.04	0.00	0.11
Cl	0.00	0.00	0.01	0.00	0.02	0.03	0.00	NA	NA	NA	NA
F	0.00	0.00	0.01	0.01	0.00	0.01	0.00	NA	NA	NA	NA
Total	100.87	99.99	100.42	98.13	99.95	99.97	100.07	98.84	99.23	98.82	99.13
Calculation based on 8 O											
Si	2.96	3.04	2.95	2.96	2.77	2.96	2.97	2.96	2.93	2.94	2.96
Ti	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Al	1.02	0.95	1.03	1.02	1.13	1.02	1.01	1.03	1.07	1.06	1.05
Cr	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00
Fe	0.01	0.00	0.00	0.01	0.14	0.04	0.00	0.00	0.00	0.00	0.00
Mn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mg	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00

Ca	0.03	0.03	0.04	0.04	0.14	0.06	0.03	0.03	0.07	0.06	0.06
Na	1.01	0.93	1.02	0.99	0.80	0.88	0.92	0.97	0.91	0.93	0.89
K	0.00	0.00	0.00	0.01	0.08	0.01	0.02	0.00	0.00	0.00	0.01
P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cl	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	5.04	4.95	5.05	5.03	5.09	4.98	4.98	5.01	4.99	5.00	4.97
An(%)	3.25	3.34	3.80	3.43	13.89	6.37	3.24	3.39	7.18	5.94	6.43
Ab(%)	96.48	96.26	95.98	95.96	78.41	92.16	94.40	96.44	92.37	93.60	93.04
Or(%)	0.27	0.40	0.21	0.61	7.70	1.47	2.36	0.17	0.46	0.46	0.53

NA = Not available

Table S3 Representative electron microprobe analysis of amphiboles from the Borjuri diorites.

SiO_2	38.07	37.92	38.25	38.35	38.35	37.68	36.94	37.55	38.13	37.63	37.98	38.20	37.48	38.10
TiO_2	0.49	0.78	0.79	0.37	0.35	0.49	0.92	0.69	0.47	0.62	0.40	0.63	0.63	0.45
Al_2O_3	11.96	11.29	11.85	12.00	11.49	12.13	12.30	12.33	12.50	12.32	12.90	12.08	12.46	12.58
Cr_2O_3	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.09	0.05	0.00	0.00	0.03	0.00
FeO	29.58	29.97	30.33	30.67	30.71	30.08	29.23	29.26	28.55	29.16	29.25	28.78	29.06	29.35
MnO	0.62	0.58	0.67	0.74	0.59	0.79	0.76	0.59	0.57	0.57	0.62	0.71	0.65	0.57
MgO	1.43	1.51	1.46	1.51	1.68	1.41	1.76	1.77	1.83	1.77	1.69	1.86	1.77	1.91
CaO	11.00	10.82	11.01	11.22	11.20	11.05	10.88	10.84	10.97	10.76	11.10	10.68	10.75	10.61
Na_2O	1.13	1.33	1.27	1.44	1.33	1.47	1.30	1.33	1.19	1.31	1.15	1.36	1.29	1.20
K_2O	1.55	1.59	1.58	1.53	1.20	1.32	1.67	1.67	1.68	1.66	1.63	1.52	1.72	1.61
P_2O_5	0.00	0.03	0.00	0.02	0.05	0.00	0.11	0.10	0.00	0.00	0.00	0.05	0.05	0.01
BaO	NA	NA	NA	NA	0.00	0.00	0.13	0.03	0.02	0.01	0.00	0.00	0.00	0.00
Cl	0.13	0.13	0.11	0.11	0.07	0.08	NA	NA	0.12	0.13	0.14	0.11	0.13	0.12
F	0.07	0.42	0.19	0.00	0.14	0.10	NA	NA	0.00	0.00	0.00	0.02	0.00	0.02
Total	96.03	96.36	97.51	97.95	97.13	96.59	96.00	96.16	96.12	96.00	96.86	96.00	96.02	96.53
Calculation based on 23 O														
Si	6.21	6.21	6.17	6.15	6.18	6.12	6.04	6.11	6.19	6.13	6.12	6.21	6.11	6.14
Al^{iv}	1.79	1.79	1.83	1.85	1.82	1.88	1.96	1.89	1.81	1.87	1.88	1.79	1.89	1.86
Sum T	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Al^{vi}	0.51	0.39	0.42	0.42	0.36	0.44	0.40	0.47	0.58	0.49	0.56	0.53	0.50	0.53
Ti	0.06	0.10	0.10	0.04	0.04	0.06	0.11	0.08	0.06	0.08	0.05	0.08	0.08	0.05
Fe^{3+}	0.57	0.55	0.60	0.66	0.78	0.67	0.68	0.60	0.48	0.59	0.62	0.51	0.60	0.69
Cr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.01	0.00
Mg	0.35	0.37	0.35	0.36	0.40	0.34	0.43	0.43	0.44	0.43	0.41	0.45	0.43	0.46
Fe^{2+}	3.47	3.55	3.49	3.45	3.36	3.42	3.32	3.38	3.39	3.38	3.32	3.40	3.35	3.26
Mn^{3+}	0.05	0.03	0.05	0.07	0.05	0.07	0.06	0.03	0.03	0.02	0.04	0.03	0.03	0.00

Sum C	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Mg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fe^{2+}	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mn^{2+}	0.04	0.05	0.05	0.03	0.03	0.04	0.04	0.05	0.05	0.06	0.04	0.07	0.06	0.08
Ca	1.92	1.90	1.90	1.93	1.93	1.92	1.90	1.89	1.91	1.88	1.91	1.86	1.88	1.83
Na	0.04	0.05	0.05	0.04	0.04	0.04	0.05	0.06	0.04	0.06	0.05	0.07	0.06	0.09
Sum B	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Na	0.32	0.37	0.35	0.41	0.38	0.42	0.36	0.36	0.33	0.35	0.31	0.35	0.34	0.29
K	0.32	0.33	0.33	0.31	0.25	0.27	0.35	0.35	0.35	0.34	0.33	0.32	0.36	0.33
Sum A	0.64	0.70	0.67	0.72	0.63	0.70	0.71	0.71	0.68	0.70	0.65	0.67	0.70	0.62
Total	15.64	15.70	15.67	15.72	15.63	15.70	15.71	15.71	15.68	15.70	15.65	15.67	15.70	15.62
$(Mg+Fe^{2+}+Mn^{2+})$	3.90	4.00	3.93	3.91	3.84	3.87	3.85	3.89	3.91	3.89	3.81	3.95	3.87	3.80
$Mg/Mg+Fe^{2+}$	0.09	0.09	0.09	0.09	0.11	0.09	0.11	0.11	0.12	0.11	0.11	0.12	0.11	0.12
$(Ca+Na)_B$	1.96	1.95	1.95	1.97	1.97	1.96	1.96	1.95	1.95	1.94	1.96	1.93	1.94	1.92
$(Na+K)_A$	0.64	0.70	0.67	0.72	0.63	0.70	0.71	0.71	0.68	0.70	0.65	0.67	0.70	0.62

NA = Not available

Table S4 Representative analyses of biotite from the Borjuri diorites.

SiO_2	32.88	33.88	33.15	33.59	33.29	33.30	33.66	33.28	31.68	33.93	33.47	32.94
TiO_2	2.49	2.38	2.62	2.56	2.60	2.63	2.58	2.64	1.99	2.22	2.29	2.09
Al_2O_3	14.79	15.24	14.75	15.03	15.44	14.73	15.02	14.91	15.75	15.13	15.03	14.95
Cr_2O_3	0.00	0.03	0.00	0.01	0.05	0.07	0.05	0.04	0.03	0.01	0.00	0.03
FeO	30.76	30.17	29.43	29.96	29.82	30.22	30.06	29.60	33.32	30.76	31.04	30.19
MnO	0.63	0.48	0.63	0.38	0.39	0.36	0.52	0.45	0.57	0.42	0.44	0.42
MgO	3.07	3.02	2.93	2.96	2.90	2.83	3.03	2.96	3.15	2.80	2.69	2.87
CaO	0.04	0.04	0.04	0.04	0.00	0.05	0.03	0.07	0.02	0.00	0.00	0.02
Na_2O	0.11	0.15	0.36	0.24	0.29	0.15	0.13	0.32	0.17	0.16	0.03	0.13
K_2O	8.91	9.08	8.79	8.78	8.88	8.89	8.88	8.75	7.06	8.74	8.87	8.83
P_2O_5	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00
BaO	0.26	0.15	0.25	0.23	0.28	0.26	0.32	0.33	0.09	0.11	0.16	0.24
Total	93.97	94.62	92.95	93.78	93.94	93.49	94.28	93.40	93.83	94.28	94.02	92.71
Calculation based on 11 O												
Si	2.73	2.77	2.76	2.77	2.74	2.77	2.77	2.76	2.64	2.79	2.77	2.76
Al^{iv}	1.27	1.23	1.24	1.23	1.26	1.23	1.23	1.24	1.36	1.21	1.23	1.24
Sum T	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Al^{vi}	0.18	0.24	0.21	0.23	0.24	0.21	0.22	0.22	0.19	0.25	0.23	0.24
Ti	0.16	0.15	0.16	0.16	0.16	0.16	0.16	0.16	0.12	0.14	0.14	0.13
Fe	2.14	2.06	2.05	2.07	2.05	2.10	2.07	2.05	2.32	2.11	2.15	2.12
Mn	0.04	0.03	0.04	0.03	0.03	0.03	0.04	0.03	0.04	0.03	0.03	0.03

Mg	0.38	0.37	0.36	0.36	0.36	0.35	0.37	0.37	0.39	0.34	0.33	0.36
Sum Y	2.90	2.85	2.84	2.85	2.84	2.85	2.85	2.83	3.07	2.87	2.88	2.87
Ca	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Na	0.02	0.02	0.06	0.04	0.05	0.02	0.02	0.05	0.03	0.03	0.00	0.02
K	0.94	0.95	0.93	0.92	0.93	0.94	0.93	0.93	0.75	0.92	0.94	0.94
Ba	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.01	0.01
Sum X	0.97	0.98	1.00	0.97	0.99	0.98	0.96	0.99	0.78	0.94	0.95	0.97
Fe+Mg	2.52	2.43	2.42	2.43	2.41	2.45	2.44	2.42	2.71	2.45	2.48	2.47
Fe/Fe+Mg	0.85	0.85	0.85	0.85	0.85	0.86	0.85	0.85	0.86	0.86	0.87	0.86
Fe+Mn+Ti-Al^{vi}	2.16	2.00	2.05	2.02	2.00	2.08	2.04	2.03	2.30	2.03	2.09	2.04

Table S5 Results of box-counting fractal dimensions and lacunarity of different morphologies in quartz-K-feldspar intergrowth.

Samples	MD7 (rod-shaped)			MD8 (triangular)			MD28 (irregular)			MD7 (fine)			MD7 (course)		
Analytical results	D_B	Λ	r^2	D_B	Λ	r^2	D_B	Λ	r^2	D_B	Λ	r^2	D_B	Λ	r^2
	1.8356	0.1735	0.9971	1.7966	0.2494	0.9977	1.7159	0.3341	0.9995	1.8638	0.1775	0.9991	1.7646	0.306	0.9987
	1.8331	0.2151	0.9971	1.8017	0.2018	0.9974	1.7208	0.3285	0.9996	1.868	0.1739	0.9993	1.7751	0.3395	0.9989
	1.8342	0.2117	0.9971	1.8001	0.2248	0.9975	1.7126	0.3326	0.9995	1.87	0.1776	0.9994	1.7741	0.3214	0.9988
	1.835	0.1787	0.9971	1.7993	0.2216	0.9979	1.7149	0.3364	0.9993	1.8632	0.1741	0.999	1.7712	0.3148	0.999
	1.7534	0.2676	0.9943	1.7384	0.3158	0.9962	1.6923	0.366	0.9994	1.8098	0.2428	0.9976	1.7144	0.3858	0.9976
	1.7592	0.2634	0.9939	1.7369	0.2914	0.996	1.6895	0.3757	0.9995	1.8058	0.2469	0.9981	1.7288	0.3717	0.9978
	1.7615	0.2584	0.9945	1.7213	0.3128	0.9961	1.6886	0.3726	0.9994	1.8104	0.2405	0.9981	1.7227	0.3784	0.9979
	1.7652	0.2512	0.9946	1.7326	0.3009	0.9975	1.694	0.3574	0.9994	1.7966	0.2514	0.9983	1.725	0.3621	0.9981
	1.7553	0.2607	0.9953	1.7252	0.3305	0.9974	1.6946	0.3653	0.9994	1.8091	0.2425	0.9981	1.7151	0.378	0.9981
	1.7651	0.2536	0.9967	1.7554	0.2663	0.9966	1.6893	0.3724	0.9993	1.8065	0.2411	0.9982	1.7291	0.3573	0.9985
	1.7591	0.2479	0.9963	1.7403	0.2926	0.9972	1.6961	0.3603	0.9995	1.8024	0.2494	0.998	1.7295	0.3539	0.9987
	1.7701	0.2255	0.9965	1.7452	0.2804	0.9973	1.6928	0.3745	0.9994	1.7985	0.2485	0.9982	1.7272	0.3613	0.9983