Supplement 1. Petrography

Sample	Interval (m)	Grain Size (μm)	Sorting	Roundness	Maturity	Qm	Qp	Q	Pt	K+P	F	Lex	Lp	Lv	Lncarb	Lcarb	Ls	TQM	Mp	Lm	M	HM	Misc	Sum	Sum QFL	Q (%)	F (%)	L (%)	Qm (%)	Lt (%)
S1[1]	1572.05	130	well/moderately well sorted	angular to sub-rounded	mature-submature	123	46	169	3	41	44	0	14	14	1	96	97	32	6	38	18	15	1	396	362	46.7	12.1	41.2	34	53.9
S1[2]	2100.00	130	well/moderately well sorted	angular to sub-rounded	mature-submature	114	50	164	1	39	40	1	7	8	1	93	94	19	12	31	63	8	2	410	337	48.6	11.9	39.5	33.8	54.3
S2	1768.85	100	well/moderately well sorted	angular to sub-rounded	mature-submature	115	31	146	4	36	40	1	8	9	0	78	78	26	9	35	32	13	0	353	308	47.4	13	39.6	37.3	49.7
S3	2305.80	100	moderately well sorted	angular to sub-rounded	submature	130	40	170	2	39	41	0	6	6	0	62	62	19	8	27	92	8	1	407	306	55.6	13.4	31	42.5	44.1
S4[1]	827.70	110	well/moderately well sorted	angular to sub-rounded	mature-submature	129	33	162	7	54	61	1	7	8	5	60	65	14	9	23	91	30	4	444	319	50.8	19.1	30.1	40.4	40.5
S4[2]	904.50	100	well/moderately well sorted	angular to sub-rounded	mature-submature	131	42	173	5	46	51	2	9	11	4	65	69	23	17	40	46	22	1	413	344	50.3	14.8	34.9	38.1	47.1
S5	1436.15	110	well/moderately well sorted	angular to sub-rounded	mature-submature	113	36	149	0	50	50	3	18	21	8	67	75	25	25	50	82	10	2	439	345	43.2	14.5	42.3	32.8	52.7
S6[1]	2529.65	80	well/moderately well sorted	angular to sub-rounded	mature-submature	114	47	161	2	51	53	0	20	20	0	66	66	8	7	15	34	16	5	370	315	51.1	16.8	32.1	36.2	47
S6[2]	3068.75	90	moderately sorted	angular to sub-rounded	submature	123	52	175	0	45	45	0	7	7	0	83	83	15	6	21	64	12	2	409	331	52.9	13.6	33.5	37.2	49.2
D1	1992.25	100	well/moderately well sorted	angular to sub-rounded	mature-submature	107	60	167	1	43	44	1	11	12	3	79	82	19	15	34	81	12	2	434	339	49.3	13	37.7	31.6	55.4
D2	1398.70	130	well/moderately well sorted	angular to sub-rounded	mature-submature	101	40	141	3	36	39	0	5	5	4	87	91	23	6	29	66	11	3	385	305	46.2	12.8	41	33.1	54.1
D3[1]	1098.95	140	well/moderately well sorted	angular to sub-rounded	mature-submature	140	42	182	2	37	39	1	9	10	0	68	68	18	5	23	46	6	5	379	322	56.5	12.1	31.4	43.5	44.4
D3[2]	2127.25	150	well/moderately well sorted	angular to sub-rounded	mature-submature	126	63	189	2	25	27	1	6	7	0	75	75	26	12	38	63	8	0	407	336	56.3	8	35.7	37.5	54.5
D4[1]	3331.20	120	well/moderately well sorted	angular to sub-rounded	mature-submature	123	59	182	3	38	41	1	5	6	3	82	85	12	6	18	32	15	4	383	332	54.8	12.4	32.8	37	50.6
D4[2]	3760.85	220	moderately well sorted	angular to sub-rounded	submature	135	49	184	0	42	42	1	7	8	3	64	67	9	9	18	35	7	4	365	319	57.7	13.2	29.1	42.3	44.5
D5[1]	2818.95	150	well/moderately well sorted	angular to sub-rounded	mature-submature	141	32	173	6	46	52	1	11	12	1	75	76	25	14	39	48	9	1	410	352	49.1	14.8	36.1	40	45.2
D5[2]	4010.95	130	well/moderately well sorted	angular to sub-rounded	mature-submature	122	42	164	4	48	52	1	22	23	2	64	66	17	12	29	52	8	2	396	334	49.1	15.6	35.3	36.5	47.9
D6	1689.90	170	well/moderately well sorted	angular to sub-rounded	mature-submature	102	53	155	2	47	49	3	11	14	5	56	61	23	16	39	61	12	2	393	318	48.7	15.4	35.9	32.1	52.5

Table 1.1. Modal composition of the Upper Miocene sandstones from the Sava (S1-S6) and Drava (D1-D6) depressions.

Qm	monocrystalline quartz
Qp	polycrystalline quartz
Q	total quartz
Pt	twinned plagioclase feldspar
K+P	potassium (alkali) feldspar, non-twinned plagioclase feldspar, sericitized plagioclase feldspar, albitized potassium (alkali) feldspar, and other altered and partly-dissolved plagioclase or potassium (alkali) feldspar
F	total feldspar
Lex	extrusive (volcanic) rock
Lp	intrusive (plutonic) rock
Lv	total magmatic (igneous) rock
Lncarb	siliciclastic sediment
Lcarb	carbonatic sediment
Ls	total sedimentary rock
TQM	quartz-mica tectonite
Mp	polycrystalline mica
Lm	total metamorphic rock
M	phyllosilicate
HM	accessory heavy mineral and opaque mineral
Misc	miscellaneous and unidentified grain

Explanation of the abbreviations and symbols in Table 1.1.

Supplement 2. Heavy Minerals

Sample	Interval (m)	Fraction	HMC	opaque	mica	tHM	Sum	Garnet	Apatite	Zircon	Tourmaline	Rutile	Brookite	Anatase	Epidote	Clinozoisite	Zoisite	Titanite	Chloritoid	Chormite	Staurolite	Kyanite	X	Sum
S1[1]	1572.05	0.063 - 0.125	9.6	10	39	52	100	76	10	1	3	5	0	0	3	0	0	0	0	0	1	0	1	100
S1[2]	2100.00	0.063 - 0.125	6.5	3	82	15	100	79	11	1	5	3	0	0	0	0	0	0	0	0	0	0	1	100
S2	1768.85	0.063 - 0.125	5.1	2	81	17	100	66	18	2	8	3	0	0	1	0	0	0	1	0	0	0	1	100
S3	2305.80	0.063 - 0.125	3.1	4	78	18	100	67	14	1	8	10	0	0	0	0	0	1	0	0	0	0	1	100
S4[1]	827.70	0.063 - 0.125	0.2	5	59	36	100	28	7	2	2	1	0	0	51	6	1	2	0	0	0	0	1	100
S4[2]	904.50	0.063 - 0.125	5.6	2	73	24	100	33	9	2	3	2	0	0	38	11	1	1	0	0	0	0	1	100
S5	1436.15	0.063 - 0.125	4.0	3	84	14	100	73	15	2	3	4	0	0	0	1	0	0	1	0	0	0	1	100
S6[1]	2529.65	0.063 - 0.125	4.0	3	86	11	100	47	31	4	9	6	0	0	0	0	0	0	1	0	0	0	1	100
S6[2]	3068.75	0.063 - 0.125	5.5	3	81	15	100	59	21	1	10	7	0	0	0	0	0	0	0	0	0	0	1	100
D1	1992.25	0.063 - 0.125	4.7	2	83	15	100	45	29	3	12	8	0	0	0	0	0	0	1	1	0	0	1	100
D2	1398.70	0.063 - 0.125	9.1	6	50	44	100	84	8	1	2	4	0	0	0	0	0	0	0	0	0	0	1	100
D3[1]	1098.95	0.063 - 0.125	6.8	2	68	30	100	72	15	1	5	5	0	0	0	0	0	0	0	0	0	0	1	100
D3[2]	2127.25	0.063 - 0.125	5.6	4	72	23	100	49	20	5	11	12	0	0	0	0	0	0	1	0	0	0	2	100
D4[1]	3331.20	0.063 - 0.125	3.6	2	89	8	100	30	48	5	10	4	0	0	0	0	0	0	0	0	0	0	2	100
D4[2]	3760.85	0.063 - 0.125	5.6	4	87	9	100	33	35	4	15	11	0	0	0	0	0	0	0	0	0	0	1	100
D5[1]	2818.95	0.063 - 0.125	4.0	3	71	26	100	70	17	2	5	3	0	0	0	0	0	0	0	1	0	0	1	100
D5[2]	4010.95	0.063 - 0.125	5.4	1	95	4	100	33	45	5	11	4	0	0	0	0	0	0	0	1	0	0	1	100
D6	1689.90	0.063 - 0.125	5.0	4	76	20	100	66	21	2	4	3	0	0	1	0	0	0	1	0	0	0	1	100

Table 2.1. Heavy mineral composition of the Upper Miocene sandstones from the Sava (S1-S6) and Drava (D1-D6) depressions.

Zircon	Rutile	Apatite	Tourmaline	Garnet	Balance	Interpretation
-1	-1	-1	-1	1	b1	Selective dissolution
-1	-1	1	1	0	b2	Selective sorting
0	0	-1	1	0	b3	Provenance indicator
-1	1	0	0	0	b4	Provenance indicator

Table 2.2. Sign matrix and interpretations of modelled balances. Minerals with 1 are in numerator, with -1 are in denominator, while those with 0 are not included in balance construction.

Figure 2.1. The proportion of heavy minerals in the Upper Miocene sandstones from the Sava and Drava depressions and the distribution of heavy minerals per sample.

Supplement 3. Raman Spectroscopy

Sample	No	Alm	Py	Sp	An	Gro	Peak 1 (210-245)	Peak 2 (340–368)	Peak 3 (369–380)	Peak 4 (515–560)	Peak 5 (800-870)	Peak 6 (870-920)
S1[1]	GRANAT9.1	0.96	0.00	0.02	0.02	0.00	216.54	341.12	369.49	555.14	860.12	914.82
S1[1]	GRANAT10.1	0.84	0.12	0.02	0.02	0.00	214.79	344.91	371.21	555.42	861.94	915.80
S1[1]	GRANAT11.1	0.86	0.10	0.04	0.00	0.00	215.12	343.67	371.56	555.57	862.78	916.18
S1[1]	GRANAT12.2	0.58	0.18	0.06	0.00	0.18		350.71	371.27	555.82	855.66	910.40
S1[1]	GRANAT13.0	0.60	0.20	0.00	0.00	0.20		347.93	372.78	554.92	856.08	911.98
S1[1]	GRANAT14.0	0.96	0.04	0.00	0.00	0.00		343.01	371.49	555.76	863.16	916.56
S1[1]	GRANAT14.1	0.84	0.16	0.00	0.00	0.00		344.30	371.11	555.41	871.43	915.89
S1[1]	GRANAT16.0	0.88	0.12	0.00	0.00	0.00		344.85	371.09	555.85	865.43	914.76
S1[1]	GRANAT18.0	0.76	0.18	0.06	0.00	0.00		345.90	372.17	555.96	863.01	917.45
S1[1]	GRANAT19.0	0.74	0.18	0.06	0.02	0.00		345.80	372.15	555.76	862.00	916.11
S1[1]	GRANAT20.0	0.76	0.18	0.00	0.06	0.00		345.81	371.66	554.54	861.73	914.24
S1[2]	GRANAT1.0	0.88	0.12	0.00	0.00	0.00	213.73	344.14	370.78	555.43	864.34	916.34
S1[2]	GRANAT2.0	0.54	0.18	0.20	0.00	0.08		349.52	371.02	555.98	857.83	913.03
S1[2]	GRANAT3.0	0.38	0.14	0.48	0.01	0.00	216.52	347.34	376.20	557.41	856.85	911.96
S1[2]	GRANAT4.0	0.74	0.10	0.00	0.02	0.16		349.95	365.84	555.50	859.57	908.98
S1[2]	GRANAT4.1	0.74	0.16	0.02	0.04	0.04		346.93	370.89	555.12	860.13	913.76
S1[2]	GRANAT5.0	0.64	0.10	0.24	0.02	0.00	214.39	346.58	369.54	555.33	858.05	913.12
S1[2]	GRANAT6.0	0.54	0.18	0.14	0.00	0.14		350.66	371.31	555.46	856.36	911.15
S1[2]	GRANAT7.0	0.86	0.14	0.00	0.00	0.00		345.07	371.00	555.97	864.16	916.89
S1[2]	GRANAT8.0	0.80	0.14	0.00	0.04	0.02		345.95	370.53	555.33	861.07	914.25
S1[2]	GRANAT9.0	0.64	0.08	0.26	0.00	0.02		346.68	369.64	555.31	858.51	913.93
S1[2]	granat10.0	0.48	0.02	0.50	0.00	0.00		346.17	371.17	555.13	855.82	911.67
S1[2]	granat11.0	0.74	0.22	0.00	0.04	0.00		346.81	372.16	555.92	862.81	915.45
S1[2]	granat12.0	0.58	0.14	0.00	0.02	0.26		351.90	370.48	554.09	852.69	906.66
S1[2]	GRANAT12.1	0.54	0.26	0.04	0.02	0.14		351.62	373.71	555.23	858.51	910.91
S1[2]	GRANAT13.0	0.72	0.18	0.08	0.02	0.00		346.03	373.14	555.75	861.87	915.90
S1[2]	GRANAT14.0	0.78	0.00	0.00	0.00	0.22		349.47	360.90	555.05	853.90	908.24
S1[2]	GRANAT16.0	0.44	0.12	0.32	0.00	0.12		349.73	374.25	555.11	855.37	908.79
S1[2]	GRANAT17.0	0.78	0.20	0.00	0.00	0.02		347.57	372.70	557.21	869.23	911.49
S1[2]	GRANAT18.0	0.00	0.26	0.62	0.00	0.12		354.76	378.38	554.82	852.60	907.33
S1[2]	GRANAT18.1	0.00	0.24	0.62	0.00	0.14		354.86	375.50	554.84	850.93	907.34
S6[1]	GRANAT1.0	0.46	0.06	0.48	0.00	0.00		346.79	371.81	554.68	856.63	912.12
S6[1]	GRANAT3.0	0.74	0.18	0.02	0.06	0.00	214.53	346.87	371.08	554.85	861.20	913.21
S6[1]	GRANAT5.0	0.72	0.16	0.02	0.10	0.00	212.82	347.12	368.52	554.39	856.88	911.49
S6[1]	GRANAT6.0	0.72	0.06	0.20	0.02	0.00		345.00	371.94	554.67	859.51	913.86
S6[1]	GRANAT7.0	0.48	0.02	0.46	0.00	0.04		346.41	372.75	555.08	855.28	909.96
S6[1]	GRANAT7.1	0.40	0.20	0.20	0.00	0.20		350.17	376.20	554.27	854.14	909.32
S6[1]	GRANAT8.0	0.72	0.00	0.08	0.00	0.20		347.39	372.13	554.23	854.73	906.60
S6[1]	GRANAT9.0	0.40	0.20	0.20	0.00	0.20		350.90	378.82	554.19	853.24	908.11
S6[1]	GRANAT9.1	0.48	0.24	0.00	0.02	0.26		354.63	368.39	554.46	852.19	908.51
S6[1]	GRANAT10.0	0.62	0.14	0.20	0.02	0.02		347.10	371.26	555.34	859.15 863.44	913.55
S6[1]	GRANAT12.0	0.72	0.12	0.02	0.02	0.12		348.24	368.22	555.15	856.84	912.11
S6[1]	GRANAT12.1	0.58	0.10	0.30	0.02	0.00	215.49	346.48	371.35	555.03	857.93	912.70
S6[1]	GRANAT14.0	0.88	0.12	0.00	0.00	0.00		343.64	370.73	554.69	865.81	916.12
S6[1]	GRANAT15.0	0.80	0.10	0.00	0.02	0.08		346.50	369.89	555.24	859.41	912.41
D3[1]	granat1.0	0.84	0.12	0.00	0.04	0.00		345.05	371.05	555.3	861.47	914.87
D3[1]	granat4.0	0.86	0.14	0.00	0.00	0.00		345.03	372.13	555.58	864.96	916.36
D3[1]	granat5.0	0.56	0.08	0.12	0.00	0.24		350.63	369.36	554.78	851.22	907.51
D3[1]	granat5.1	0.84	0.16	0.00	0.00	0.00	213.59	345.25	371.17	556.27	864.84	917.56
D3[1]	granat7.0	0.50	0.26	0.02	0.00	0.22		353.52	370.24	555.81	855.39	910.19
D3[1]	granat8.0	0.78	0.06	0.14	0.00	0.02	215.6	345.06	371.46	556.69	861.20	912.32
D3[1]	granat9.0	0.74	0.14	0.00	0.02	0.10		348.21	369.74	555.32	858.82	912.45
D3[1]	GRANAT10.0	0.74	0.20	0.04	0.02	0.00		347.13	370.36	556.09	862.68	916.45
D3[1]	GRANAT11.0	0.68	0.14	0.00	0.02	0.16		349.54	370.16	554.81	856.44	910.49
D3[1]	GRANAT12.0	0.60	0.16	0.24	0.00	0.00		347.05	371.20	556.07	859.83	915.91
D3[1]	GRANAT13.0	0.46	0.20	0.34	0.00	0.00		348.30	375.79	555.76	860.43	913.61
D3[1]	GRANAT14.0	0.84	0.14	0.00	0.02	0.00	216.32	345.94	370.65	555.76	863.70	915.07
D3[1]	GRANAT15.0	0.76	0.18	0.06	0.00	0.00		346.18	371.31	556.49	863.79	917.14
D3[1]	GRANAT16.0	0.58	0.06	0.32	0.00	0.04		346.86	371.31	555.29	857.29	911.83
D3[1]	GRANAT18.0	0.38	0.28	0.12	0.00	0.22		354.02	375.08	555.80	855.11	908.44
D3[1]	granat20.0	0.40	0.14	0.34	0.00	0.12		350.64	370.47	555.00	853.81	910.42
D3[1]	granat21.0	0.74	0.06	0.16	0.04	0.00	218.2	344.62	371.43	553.70		913.64
D3[1]	granat24.0	0.12	0.16	0.58	0.00	0.14		353.36	372.99	554.78	850.24	907.5
D3[2]	GRANAT1.0	0.62	0.14	0.24	0.00	0.00		346.82	370.83	555.68	860.35	915.31
D3[2]	GRANAT2.0	0.84	0.16	0.00	0.00	0.00		345.47	371.84	556.23	864.76	917.66
D3[2]	GRANAT3.0	0.80	0.16	0.00	0.02	0.02		346.35	371.07	555.56	863.51	914.39
D3[2]	GRANAT4.0	0.38	0.28	0.08	0.02	0.24		354.45	374.57	554.53	854.16	907.2
D3[2]	GRANAT5.0	0.76	0.18	0.06	0.00	0.00		346.46	371.52	556.06	863.99	916.59
D3[2]	granat5.1	0.74	0.20	0.06	0.00	0.00		346.42	371.53	556.41	863.79	916.88
D3[2]	GRANAT7.0	0.84	0.16	0.00	0.00	0.00		345.19	371.11	555.92	864.13	917.19
D3[2]	GRANAT8.1	0.58	0.08	0.32	0.02	0.00		346.41	371.62	554.66	858.41	912.5
D3[2]	GRANAT9.0	0.84	0.16	0.00	0.00	0.00		346.59	369.16	555.88	865.84	915.15
D3[2]	GRANAT9.1	0.68	0.10	0.00	0.00	0.22		350.69	367.20	554.47	855.82	908.62
D3[2]	GRANAT11.0	0.76	0.18	0.00	0.06	0.00		346.42	371.10	555.02	861.40	914.5
D3[2]	GRANAT11.1	0.84	0.16	0.00	0.00	0.00		345.55	372.33	556.06	864.45	917.89
D3[2]	GRANAT12.0	0.74	0.24	0.00	0.02	0.00		346.69	372.21	556.38	863.57	917.11
D3[2]	GRANAT13.0	0.72	0.18	0.10	0.00	0.00		346.39	372.14	556.38	862.25	916.86
D3[2]	GRANAT15.0	0.70	0.08	0.14	0.00	0.08		347.06	370.65	555.23	858.29	912.27
D3[2]	GRANAT16.0	0.76	0.24	0.00	0.00	0.00		346.66	370.79	556.51	864.16	917.94
D5[1]	GRANAT1.0	0.84	0.10	0.02	0.04	0.00	214.57	344.70	370.77	555.13	860.32	914.57
D5[1]	GRANAT2.0	0.66	0.08	0.00	0.00	0.26		351.07	367.82	553.93	853.32	907.13
D5[1]	GRANAT3.1	0.60	0.20	0.00	0.00	0.20		352.79	373.01	555.05	859.85	912.80
D5[1]	GRANAT5.0	0.72	0.24	0.02	0.02	0.00		347.12	372.18	556.69	862.49	917.69
D5[1]	GRANAT6.0	0.74	0.20	0.00	0.04	0.02		347.28	371.17	555.59	861.99	914.24
D5[1]	GRANAT8.0	0.68	0.16	0.10	0.02	0.04		347.64	370.45	555.83	859.53	914.33
D5[1]	GRANAT10.0	0.76	0.18	0.04	0.02	0.00		345.88	371.12	555.96	862.35	916.08
D5[1]	GRANAT11.0	0.38	0.12	0.40	0.00	0.10		350.00	371.97	555.43	853.73	910.09
D5[1]	GRANAT12.0	0.76	0.14	0.02	0.06	0.02		345.89	371.79	554.32	860.18	912.84
D5[1]	GRANAT13.0	0.40	0.20	0.20	0.00	0.20		351.76	368.75	554.16	852.34	907.09
D5[1]	GRANAT15.0	0.60	0.20	0.00	0.00	0.20		350.75	376.79	554.89	855.28	909.36
D5[1]	GRANAT18.0	0.78	0.06	0.02	0.00	0.14		347.47	366.45	555.51	855.77	912.34
D5[1]	GRANAT19.0	0.88	0.12	0.00	0.00	0.00		344.00	370.98	555.53	865.59	917.00
D5[2]	granat0	0.84	0.10	0.04	0.02	0.00		344.83	370.69	555.76	861.77	915.39
D5[2]	GRANAT1.0	0.84	0.14	0.00	0.02	0.00	213.71	344.84	371.82	555.62	862.63	916.23
D5[2]	GRANAT2.0	0.88	0.12	0.00	0.00	0.00		344.72	370.61	555.27	865.35	915.53
D5[2]	GRANAT3.0	0.54	0.04	0.30	0.00	0.12		348.11	370.54	554.97	853.67	909.25
D5[2]	GRANAT4.0	0.80	0.08	0.00	0.04	0.08	218.39	346.31	369.89	554.49	858.76	911.52
D5[2]	GRANAT5.0	0.52	0.08	0.20	0.00	0.20		350.63	369.36	554.60	852.16	908.35
D5[2]	GRANAT6.0	0.58	0.20	0.00	0.04	0.18		351.10	372.55	554.19	855.82	908.72
D5[2]	GRANAT7.0	0.60	0.20	0.00	0.00	0.20		348.07	371.52	554.07	856.43	911.56
D5[2]	GRANAT8.0	0.68	0.12	0.00	0.00	0.20		350.20	368.10	555.48	855.36	909.74
D5[2]	GRANAT9.0	0.62	0.08	0.08	0.00	0.22		350.53	367.82	554.48	852.26	909.08
D5[2]	GRANAT10.0	0.60	0.20	0.00	0.00	0.20		347.04	371.27	555.22	859.29	913.88
D5[2]	GRANAT11.0	0.76	0.16	0.04	0.04	0.00		346.19	370.46	555.21	861.73	914.51

Table 3.1. Raman spectroscopy of garnets from the Upper Miocene sandstones from the Sava (S) and Drava (D) depressions.

Supplement 4. Geochemistry

Sample	Interval (m)	SiO_2	Al_2O_3	Fe_2O_3	MgO	CaO	Na_2O	K_2O	TiO_2	P_2O_5	MnO	Cr_2O_3	Ba	Ni	Sc	LOI	Sum	Be	Co	Cs	Ga	Hf	Nb	Rb	Sn	Sr	Ta	Th	U	V	W	Zr	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	TOT/C	TOT/S
S1[1]	1572.05	41.40	5.69	2.54	4.31	21.69	0.91	0.93	0.44	0.10	0.15	0.008	174	<20	6	21.7	99.86	<1	4.7	1.2	5.3	2.8	8.1	35.1	<1	246.6	0.6	5.6	1.8	39	0.8	107.5	14.9	16.6	31.2	3.63	13.5	2.61	0.60	2.46	0.41	2.51	0.54	1.48	0.25	1.38	0.23	6.08	<0.02
S1[2]	2100.00	58.21	8.59	3.25	4.95	8.88	1.27	1.41	0.54	0.10	0.05	0.007	310	23	7	12.6	99.85	1	8.4	2.1	9.2	3.7	9.0	55.0	2	105.0	0.7	6.3	1.8	60	1.9	133.6	14.9	18.4	35.2	4.14	15.3	2.81	0.71	2.82	0.44	2.69	0.56	1.52	0.23	1.43	0.23	3.22	0.02
S2	1768.85	54.54	8.94	3.30	5.47	10.08	1.25	1.53	0.55	0.11	0.06	0.008	272	22	7	14.0	99.84	2	8.7	2.6	11.3	3.7	9.5	59.7	2	110.5	0.8	6.3	2.2	57	2.6	140.1	17.2	20.3	38.5	4.59	16.9	3.37	0.72	3.08	0.50	2.90	0.64	1.79	0.25	1.64	0.24	3.68	0.03
S3	2305.80	52.99	9.72	3.51	5.71	9.62	1.44	1.71	0.56	0.10	0.05	0.016	304	28	8	14.3	99.82	4	9.4	2.6	11.2	3.7	9.5	66.4	2	119.9	0.6	6.6	2.2	63	1.8	136.9	16.4	19.8	37.8	4.51	17.4	3.20	0.72	2.90	0.48	2.83	0.60	1.65	0.25	1.61	0.23	3.85	0.03
S4[1]	827.70	61.37	9.95	3.84	3.00	7.60	1.80	1.87	0.47	0.12	0.06	0.027	967	32	8	9.6	99.86	4	9.2	2.6	10.5	4.2	7.7	71.5	2	226.2	0.6	7.6	2.4	58	1.4	149.9	18.8	22.8	43.7	5.24	19.9	3.98	0.79	3.57	0.57	3.13	0.70	1.96	0.27	1.85	0.28	3.24	0.04
S4[2]	904.50	59.87	9.62	3.59	3.35	8.98	1.69	1.80	0.48	0.12	0.06	0.008	309	30	8	10.3	99.85	2	8.4	2.7	10.2	4.0	8.5	69.4	2	229.7	0.7	7.4	2.5	70	1.8	148.7	18.6	22.7	43.5	5.17	19.3	4.01	0.82	3.51	0.58	3.27	0.65	1.91	0.29	1.86	0.28	2.61	<0.02
S5	1436.15	53.55	9.59	3.91	5.08	9.74	1.22	1.74	0.55	0.11	0.07	0.022	456	26	8	14.2	99.83	3	9.1	2.7	10.4	3.9	9.5	67.9	2	134.9	0.7	7.0	2.3	68	2.4	145.7	17.3	21.4	39.8	4.74	18.4	3.27	0.78	3.22	0.51	3.05	0.64	1.88	0.28	1.71	0.26	4.01	0.04
S6[1]	2529.65	57.17	11.63	4.49	3.91	7.76	1.46	2.02	0.58	0.11	0.06	0.019	378	36	10	10.6	99.84	2	11.4	3.3	13.9	4.2	10.1	83.4	3	157.9	0.8	8.0	2.2	92	2.6	149.2	17.3	24.2	46.2	5.43	20.1	3.99	0.86	3.60	0.55	3.20	0.65	1.89	0.27	1.70	0.26	2.53	0.03
S6[2]	3068.75	53.67	9.10	3.55	4.55	11.39	1.28	1.38	0.63	0.12	0.07	0.009	361	29	8	14.0	99.83	2	8.8	2.1	9.3	5.1	10.5	54.3	2	221.3	0.8	7.7	2.4	61	1.8	188.5	18.4	24.9	46.7	5.56	21.5	3.98	0.84	3.55	0.55	3.29	0.68	2.00	0.28	1.78	0.29	3.69	0.05
D1	1992.25	54.96	9.35	3.49	4.62	10.37	1.39	1.48	0.53	0.10	0.06	0.015	266	23	7	13.5	99.84	1	8.3	2.4	10.1	3.4	8.9	57.0	2	165.0	0.6	6.1	1.9	63	1.4	118.4	13.6	18.5	34.4	3.99	15.2	2.90	0.62	2.59	0.41	2.28	0.51	1.30	0.22	1.42	0.20	3.46	0.03
D2	1398.70	57.61	7.72	3.03	5.25	9.84	1.09	1.20	0.49	0.08	0.05	0.006	832	<20	7	13.4	99.86	2	6.8	1.8	7.5	3.1	8.6	46.5	2	113.7	0.7	5.7	1.9	49	1.1	113.6	14.4	18.1	32.5	3.90	14.9	2.74	0.62	2.58	0.42	2.66	0.56	1.61	0.25	1.52	0.22	3.59	0.04
D3[1]	1098.95	54.97	9.61	3.65	4.81	10.04	1.29	1.65	0.60	0.13	0.06	0.013	305	25	8	13.0	99.84	1	7.7	2.5	9.0	4.3	10.1	60.1	2	163.7	0.7	7.0	2.2	63	1.3	154.7	18.8	24.1	45.8	5.20	19.7	3.81	0.80	3.38	0.56	3.36	0.68	2.04	0.29	1.98	0.30	3.37	0.02
D3[2]	2127.25	63.25	6.93	2.69	3.87	8.88	1.20	1.12	0.51	0.09	0.05	0.007	280	21	6	11.2	99.87	1	6.6	1.9	6.9	3.9	8.8	46.2	1	125.9	0.7	6.1	1.6	41	2.0	136.9	16.9	19.6	37.5	4.39	16.6	3.34	0.70	2.99	0.47	2.71	0.60	1.76	0.27	1.65	0.25	3.17	5
D4[1]	3331.20	54.68	7.48	2.58	3.30	13.95	1.44	1.35	0.37	0.10	0.06	0.011	320	24	6	14.5	99.86	<1	5.9	2.0	6.8	3.3	6.8	53.5	2	337.2	0.6	7.0	2.2	43	1.4	123.4	18.6	21.7	42.1	4.97	17.6	3.77	0.73	3.48	0.55	3.26	0.67	1.92	0.29	1.70	0.27	3.88	0.02
D4[2]	3760.85	54.06	9.04	3.33	5.23	10.80	1.32	1.47	0.51	0.10	0.06	0.009	321	26	7	13.9	99.84	1	8.3	2.0	9.5	3.4	8.3	56.2	2	157.9	0.7	5.9	2.2	65	2.4	125.3	16.6	19.1	35.0	4.36	16.4	3.25	0.78	3.19	0.51	2.90	0.59	1.75	0.26	1.67	0.24	3.77	0.04
D5[1]	2818.95	49.63	7.20	2.42	2.90	17.72	1.27	1.38	0.41	0.10	0.09	0.012	228	<20	6	16.7	99.86	3	5.8	1.8	6.2	3.9	6.8	50.2	2	339.6	0.6	6.8	2.4	39	1.1	144.5	16.8	22.6	40.0	4.74	17.8	3.46	0.65	2.99	0.49	2.87	0.60	1.83	0.28	1.71	0.25	4.58	0.02
D5[2]	4010.95	51.46	8.08	3.09	3.64	14.51	1.21	1.49	0.42	0.10	0.06	0.013	338	29	7	15.7	99.84	<1	7.4	2.6	7.7	4.6	7.7	58.7	2	351.1	0.6	7.3	2.7	49	1.1	167.9	21.1	23.6	45.4	5.41	20.6	4.16	0.88	4.11	0.62	3.72	0.75	2.26	0.31	2.05	0.30	4.13	0.03
D6	1689.90	51.52	7.90	2.67	2.85	15.97	1.34	1.49	0.42	0.11	0.10	0.011	275	24	7	15.5	99.86	<1	6.1	2.0	7.1	3.7	7.4	52.8	2	344.3	0.6	6.9	2.3	55	2.7	136.0	19.4	21.9	41.0	4.85	18.6	3.59	0.71	3.38	0.53	3.07	0.68	2.02	0.30	1.89	0.27	4.20	0.06
		LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	TC000	TC000	
		%	%	%	%	%	%	%	%	%	%	%	PPM	PPM	PPM	%	%	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	%	%
		0.01	0.01	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.002	1	20	1	-5.1	0.01	1	0.2	0.1	0.5	0.1	0.1	0.1	1	0.5	0.1	0.2	0.1	8	0.5	0.1	0.1	0.1	0.1	0.02	0.3	0.05	0.02	0.05	0.01	0.05	0.02	0.03	0.01	0.05	0.01	0.02	0.02

Table 4.1. Geochemical composition of the Upper Miocene sandstones from the Sava (S1-S6) and Drava (D1-D6) depressions.

Sample	Eu/Eu*	Th/U	La/Co	La/Th	Th/Co	Th/Sc	La/Sc	Th/Cr	LREE	HREE	LREE/HREE	SiO_2/Al_2O_3	K_2O/Al_2O_3	Na_2O/K_2O
S1[1]	0.73	3.11	3.53	2.96	1.19	0.93	2.77	0.10	67.54	9.86	6.85	7.28	0.16	0.978495
S1[2]	0.78	3.50	2.19	2.92	0.75	0.90	2.63	0.13	75.85	10.63	7.14	6.78	0.16	0.900709
S2	0.69	2.86	2.33	3.22	0.72	0.90	2.90	0.12	83.66	11.76	7.11	6.10	0.17	0.816993
S3	0.73	3.00	2.11	3.00	0.70	0.83	2.48	0.06	82.71	11.27	7.34	5.45	0.18	0.842105
S4[1]	0.64	3.17	2.48	3.00	0.83	0.95	2.85	0.04	95.62	13.12	7.29	6.17	0.19	0.962567
S4[2]	0.67	2.96	2.70	3.07	0.88	0.93	2.84	0.14	94.68	13.17	7.19	6.22	0.19	0.938889
S5	0.74	3.04	2.35	3.06	0.77	0.88	2.68	0.05	87.61	12.33	7.11	5.58	0.18	0.701149
S6[1]	0.70	3.64	2.12	3.03	0.70	0.80	2.42	0.06	99.92	12.98	7.70	4.92	0.17	0.722772
S6[2]	0.69	3.21	2.83	3.23	0.88	0.96	3.11	0.13	102.64	13.26	7.74	5.90	0.15	0.927536
D1	0.70	3.21	2.23	3.03	0.73	0.87	2.64	0.06	74.99	9.55	7.85	5.88	0.16	0.939189
D2	0.72	3.00	2.66	3.18	0.84	0.81	2.59	0.14	72.14	10.44	6.91	7.46	0.16	0.908333
D3[1]	0.69	3.18	3.13	3.44	0.91	0.88	3.01	0.08	98.61	13.39	7.36	5.72	0.17	0.781818
D3[2]	0.68	3.81	2.97	3.21	0.92	1.02	3.27	0.13	81.43	11.4	7.14	9.13	0.16	1,071,429
D4[1]	0.62	3.18	3.68	3.10	1.19	1.17	3.62	0.09	90.14	12.87	7.00	7.31	0.18	1,066,667
D4[2]	0.74	2.68	2.30	3.24	0.71	0.84	2.73	0.10	78.11	11.89	6.57	5.98	0.16	0.897959
D5[1]	0.62	2.83	3.90	3.32	1.17	1.13	3.77	0.08	88.6	11.67	7.59	6.89	0.19	0.920290
D5[2]	0.65	2.70	3.19	3.23	0.99	1.04	3.37	0.08	99.17	15	6.61	6.37	0.18	0.812081
D6	0.63	3.00	3.59	3.17	1.13	0.99	3.13	0.09	89.94	12.85	7.00	6.52	0.19	0.899329

Table 4.2. Values of geochemical ratios of specific elements in the Upper Miocene sandstones from the Sava (S1-S6) and Drava (D1-D6) depressions.

Cr
54.74
47.89
54.74
109.47
184.73
54.74
150.52
130.00
61.58
102.63
41.05
88.95
47.89
75.26
61.58
82.10
88.95
75.26

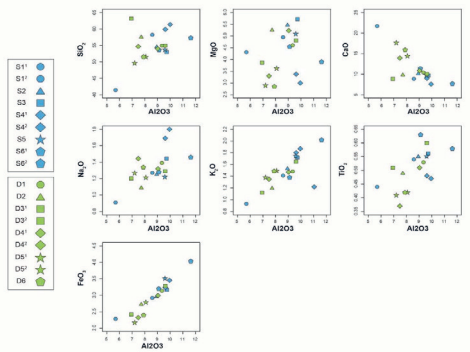

Figure 4.1. Discrimination plots of major element oxides of the Upper Miocene sandstones from the Sava (S1-S6) and Drava (D1-D6) depressions, showing their correlations, according to BHATIA, 1983.

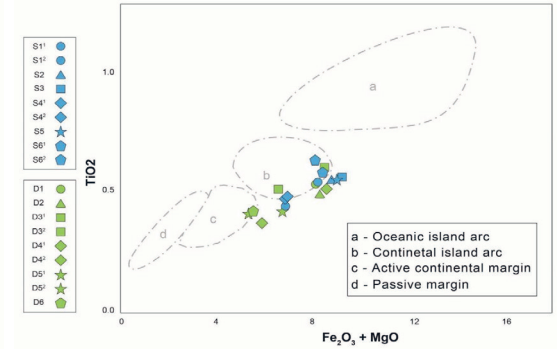

Figure 4.2. Major element composition plot (TiO2 vs. Fe2O3+MgO) of the Upper Miocene sandstones from the Sava (S1-S6) and Drava (D1-D6) depressions, showing discrimination of tectonic settings, according to BHATIA, 1983.

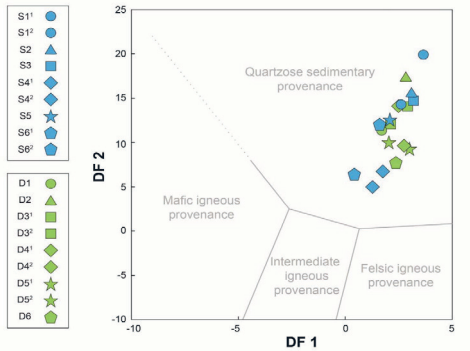

Figure 4.3. Diagram of discrimination fuctions 1 (DF1) and 2 (DF2), showing particular provenance group for the the Upper Miocene sandstones from the Sava (S1-S6) and Drava (D1-D6) depressions, according to ROSER & KORSCH, 1988.

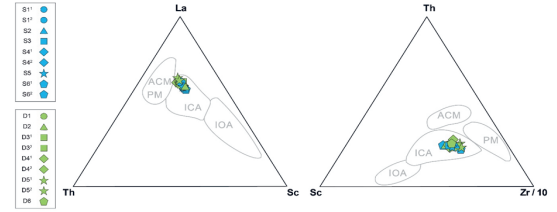

Figure 4.4. La-Th-Sc and Th-Sc-Zr/10 diagram, showing discrimination of tectonic settings of the the Upper Miocene sandstones from the Sava (S1-S6) and Drava (D1-D6) depressions, according to BHATIA & CROOK, 1986.