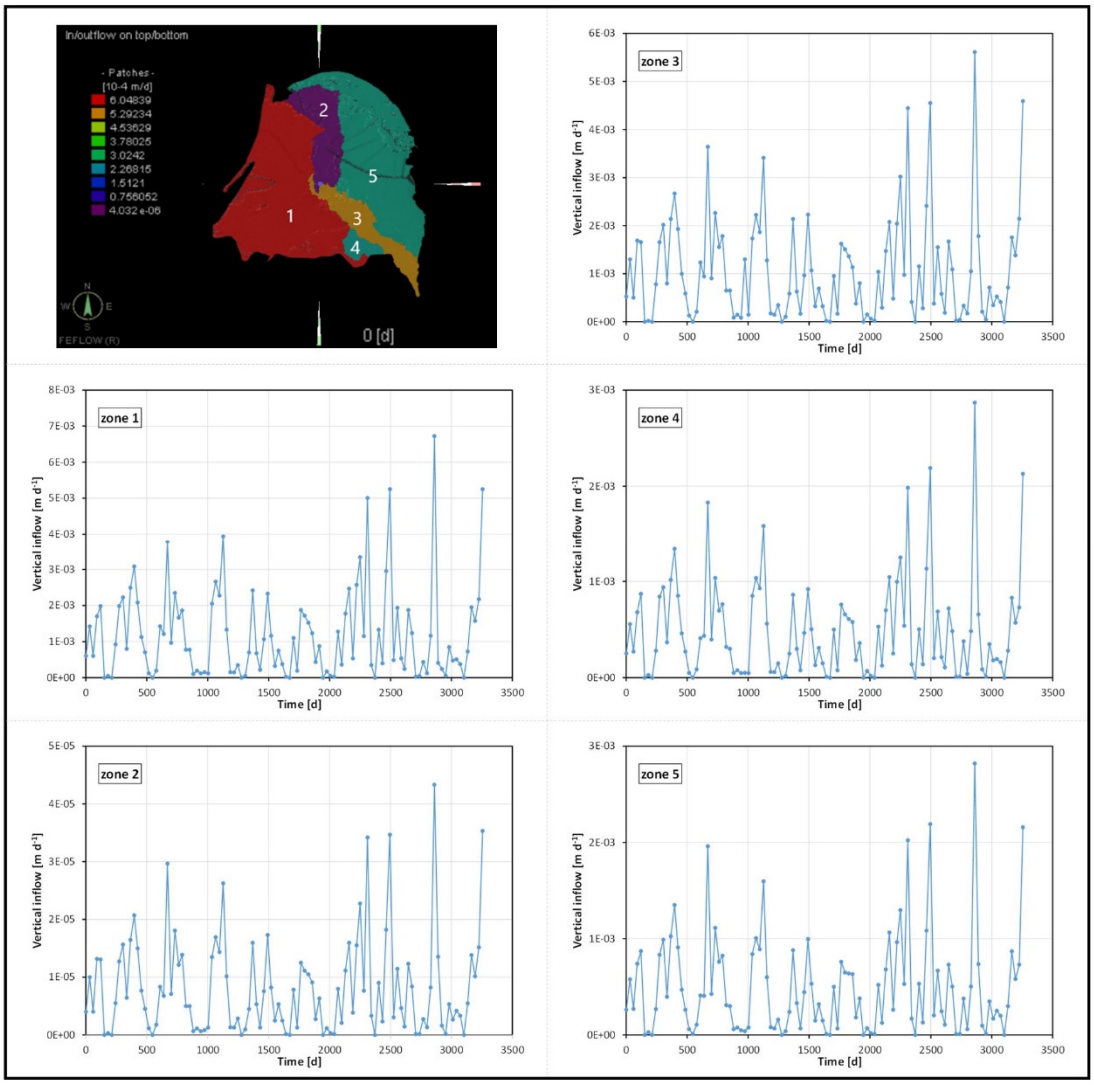
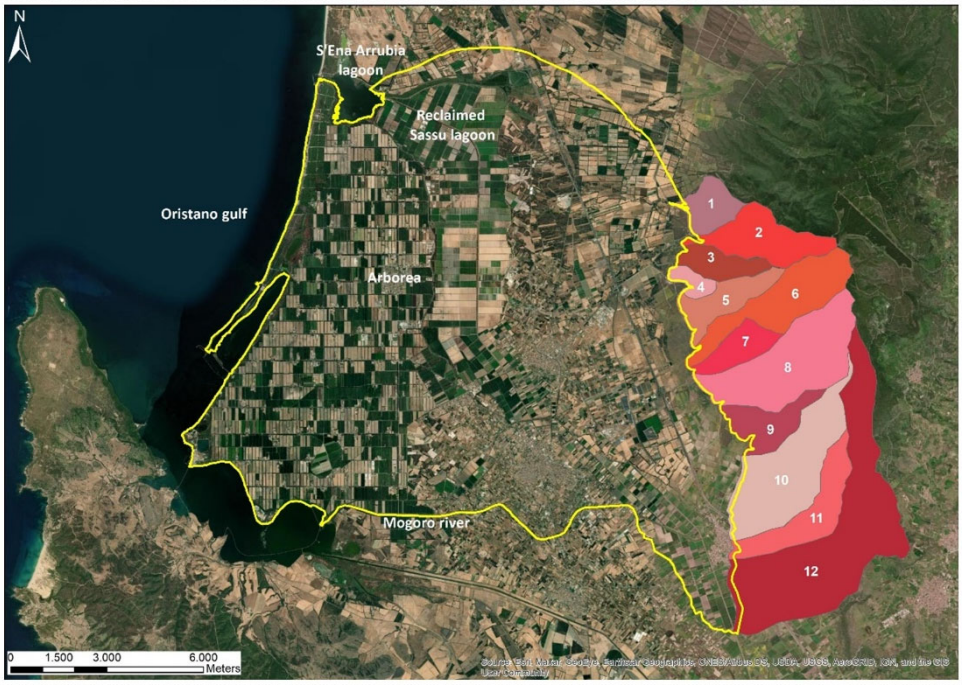


Figure S1. Monthly zonal groundwater recharges expressed in m d-1 used for the transient flow model from 2012 to 2020. Note: t=0 d and t=3285 d correspond to January 1, 2012 and December 31, 2020, respectively.



Watershed	Area (m^2)	Annual rainfall (mm)	Subzone	Lateral groundwater recharge (m d^{-1})
1	2263072	509	1-1	0.08308
			1-2	0.03399
2	4492989	509	2-1	0.04685
			2-2	0.29025
3	2081854	512	3-1	0.07514
			3-2	0.03834
4	942062	511	4-1	0.00521
			4-2	0.01578
5	2951833	512	5-1	0.01541
			5-2	0.00184
			5-3	0.02280
6	5927677	654	6	0.07141
7	2253737	510	7	0.11176
8	8969847	652	8	0.25391
9	3043203	513	9	0.05122
10	8771333	614	10	0.26167
11	4302019	801	11	0.58780
12	16875591	1089	12	0.76704

Figure S2. Steady state flow model: Lateral groundwater recharge (m d^{-1}) used for the chosen 18 subzones

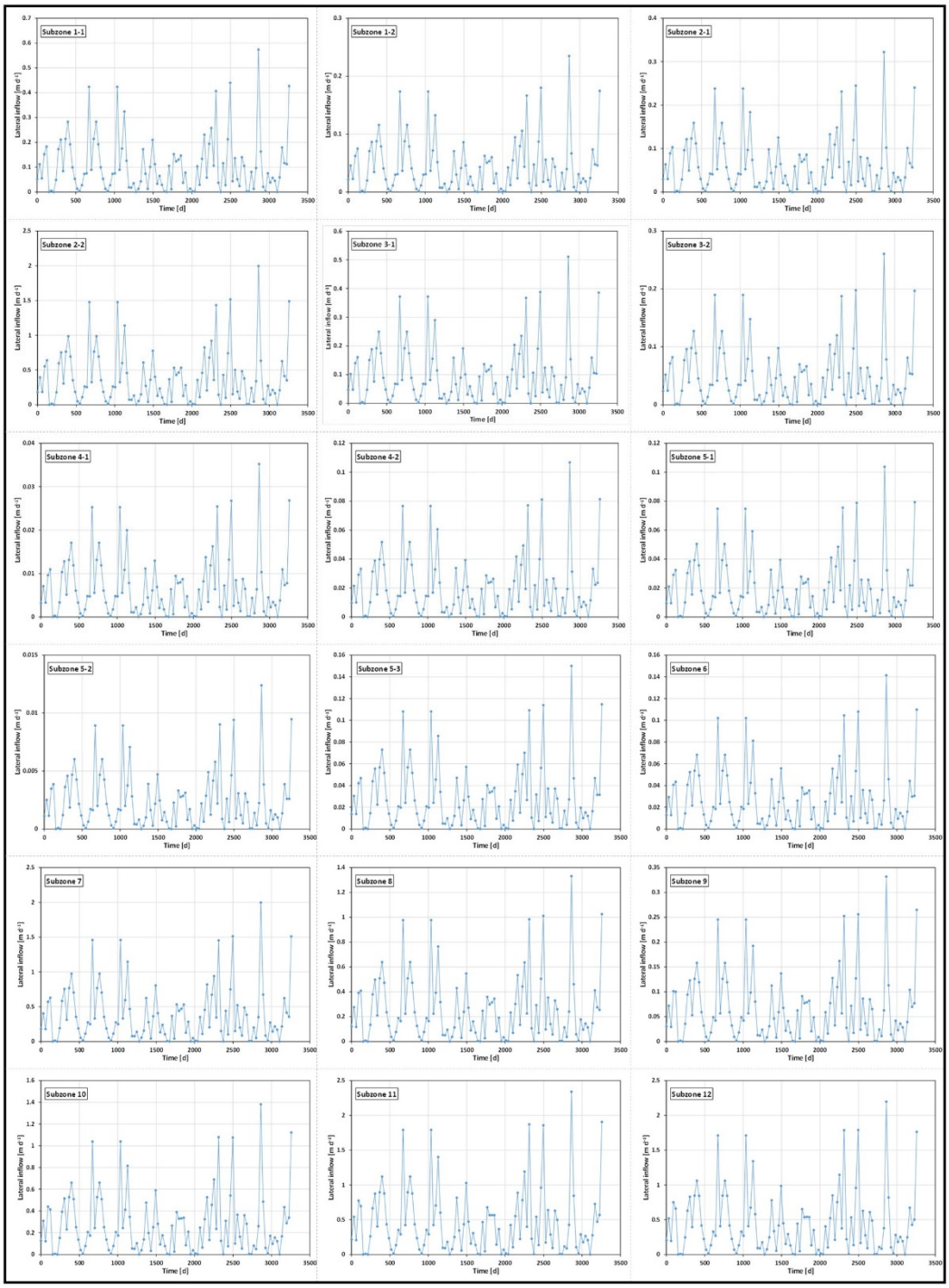


Figure S3. Transient flow model: Time series of monthly lateral groundwater recharge (m d^{-1}) used for the chosen 18 subzones. Note: t=0 d and t=3285 d correspond to January 1, 2012 and December 31, 2020, respectively.

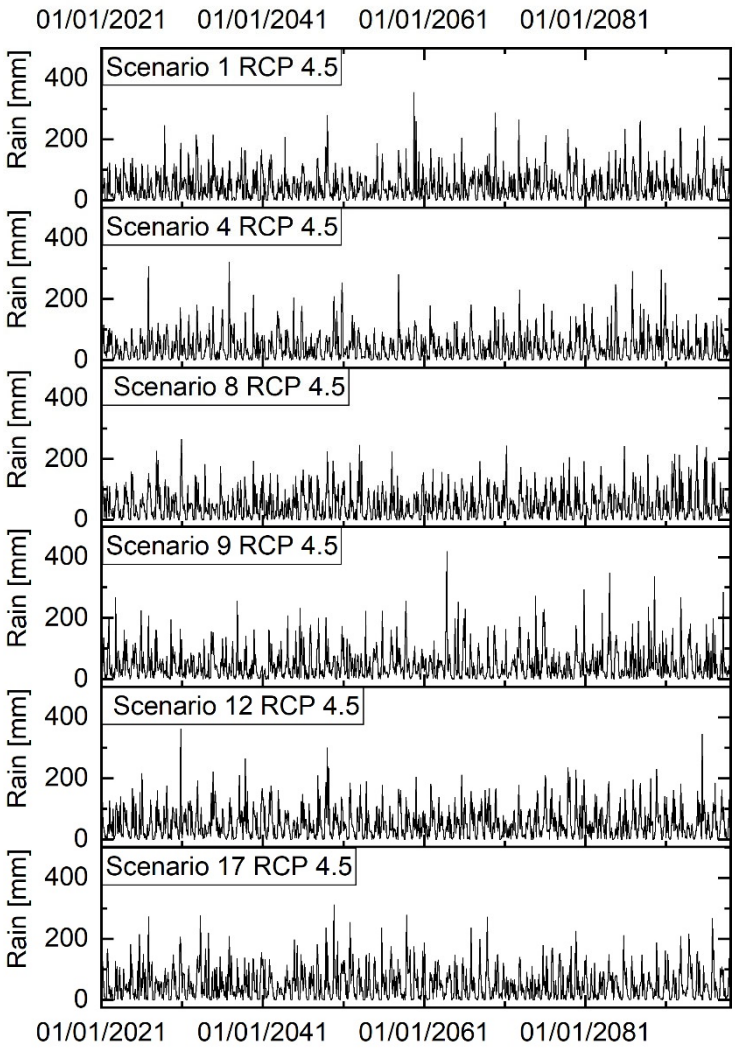


Figure S4. Monthly averaged rainfall data predicted for scenarios 1, 4, 8, 9, 12 and 17 for RCP 4.5 from January 2021 to December 2098

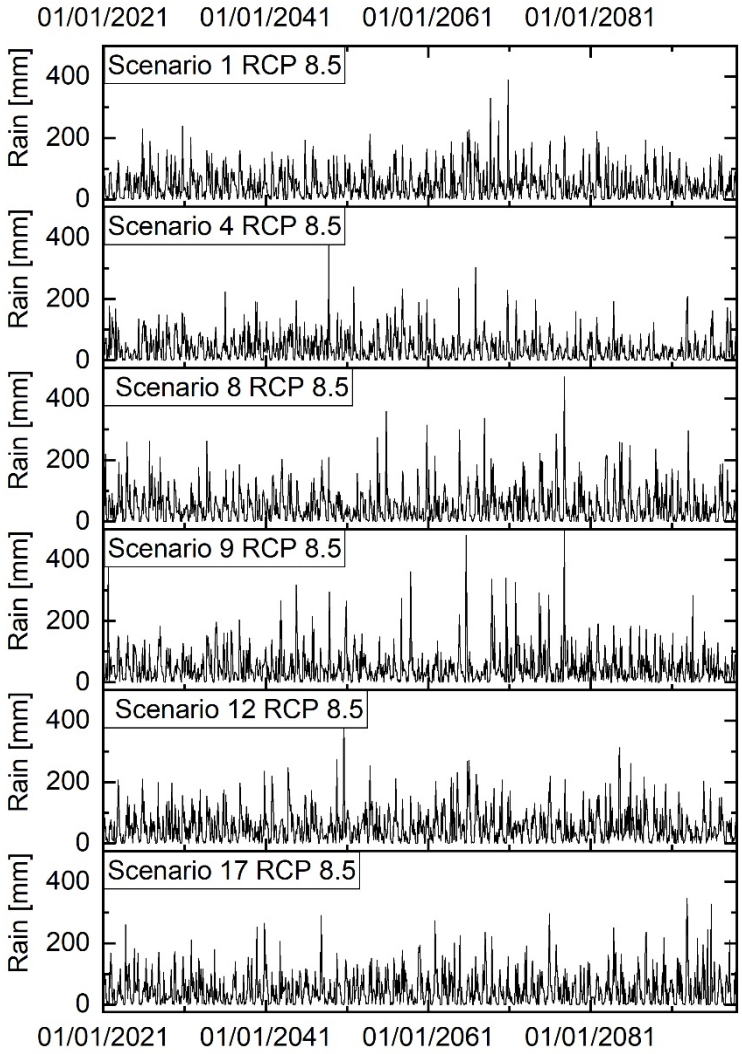


Figure S5. Monthly averaged rainfall data predicted for scenarios 1, 4, 8, 9, 12 and 17 for RCP 8.5 from January 2021 to December 2098

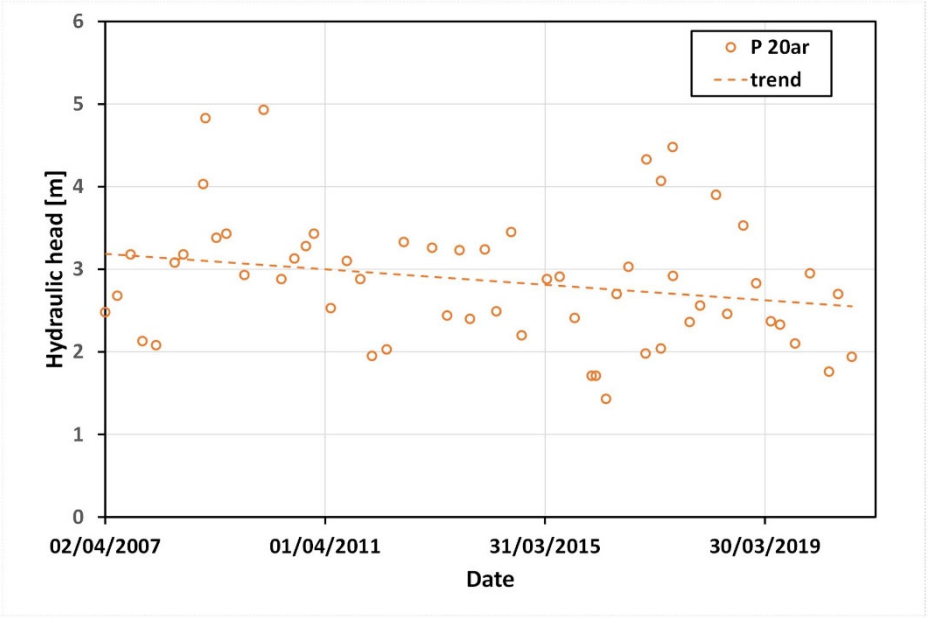


Figure S6. Trimestral groundwater level readings at monitoring well P20ar from 2007 to 2020. The dashed line indicates the observed trend showing slightly decreasing hydraulic heads.

Table S1. Results of selected scenarios 1, 4, 8, 9, 12 and 17 (see Table 2) based on RCP 4.5: time averages of the minimum, mean and maximum values of computed hydraulic heads.

	Near future (2021-2040) water table level			Mid-term (2041-2060) water table level			Long-term (2081-2098) water table level		
ID_WELL (ARPAS network)	Average min [m]	Mean [m]	Average max [m]	Average min [m]	Mean [m]	Average max [m]	Average min [m]	Mean [m]	Average max [m]
17PZ008ar	0.01	0.11	0.29	0.01	0.10	0.31	0.01	0.11	0.31
P 01ar	0.48	0.59	0.76	0.46	0.60	0.80	0.50	0.62	0.80
P 02ar	0.80	0.93	1.10	0.78	0.94	1.15	0.85	0.98	1.15
P 03ar	1.62	1.80	2.18	1.61	1.80	2.18	1.63	1.81	2.21
P 04ar	0.84	0.99	1.18	0.81	0.99	1.24	0.87	1.03	1.24
P 05ar	0.80	0.96	1.19	0.76	0.96	1.24	0.82	1.00	1.24
P 06ar	1.34	1.52	1.75	1.29	1.52	1.81	1.38	1.57	1.81
P 07ar	1.62	1.79	1.99	1.57	1.79	2.05	1.67	1.84	2.06
P 08ar	1.90	2.14	2.41	1.85	2.14	2.50	1.99	2.23	2.52
P 09ar	2.15	2.40	2.68	2.10	2.40	2.77	2.25	2.49	2.80
P 10ar	1.48	1.68	1.91	1.41	1.67	1.95	1.52	1.72	1.95
P 11ar	2.60	2.81	3.06	2.54	2.80	3.12	2.66	2.87	3.13
P 12ar	1.47	1.66	1.90	1.42	1.65	1.96	1.50	1.69	1.96
P 13ar	1.48	1.65	1.85	1.43	1.65	1.92	1.50	1.69	1.92
P 14ar	2.04	2.28	2.55	1.96	2.27	2.64	2.11	2.35	2.66
P 15ar	1.86	2.07	2.30	1.82	2.07	2.37	1.95	2.15	2.40
P 16ar	1.91	2.11	2.33	1.87	2.12	2.41	2.00	2.20	2.43
P 17ar	2.36	2.61	2.90	2.29	2.60	2.97	2.42	2.67	2.98
P 20ar	-0.40	0.12	1.12	-0.43	0.12	1.20	-0.41	0.16	1.22
P 21ar	0.76	0.95	1.20	0.72	0.94	1.26	0.77	0.98	1.25
P 22ar	1.61	1.81	2.03	1.54	1.80	2.07	1.65	1.84	2.07
P 23ar	0.30	0.46	0.70	0.27	0.45	0.74	0.30	0.47	0.74
P 24ar	0.74	0.96	1.26	0.70	0.95	1.33	0.75	0.98	1.32
P 26ar	-0.19	0.39	1.50	-0.21	0.38	1.58	-0.20	0.43	1.61
P 27ar	-0.04	0.32	1.00	-0.06	0.32	1.07	-0.03	0.37	1.08
P 28ar	1.86	2.10	2.36	1.80	2.10	2.45	1.94	2.18	2.47
P 29ar	2.00	2.24	2.50	1.92	2.23	2.59	2.06	2.30	2.60
P 30ar	0.97	1.20	1.46	0.91	1.19	1.52	1.00	1.24	1.51
P 31ar	-1.05	-1.02	-0.96	-1.05	-1.02	-0.96	-1.05	-1.02	-0.95
P 32ar	-0.61	-0.59	-0.56	-0.61	-0.59	-0.56	-0.60	-0.59	-0.56
P 34ar	1.59	1.80	1.95	1.52	1.78	1.97	1.64	1.83	1.97
P 35ar	1.30	1.49	1.71	1.27	1.49	1.77	1.37	1.55	1.79
P 36ar	0.41	0.53	0.73	0.39	0.53	0.76	0.42	0.55	0.76
P 37ar	0.54	0.67	0.88	0.51	0.67	0.92	0.55	0.70	0.91
P 38ar	0.41	0.60	0.89	0.38	0.60	0.95	0.41	0.62	0.94
P 39ar	2.10	2.76	3.93	2.05	2.75	4.06	2.09	2.82	4.08
P 40ar	3.57	4.76	6.34	3.33	4.74	6.74	3.64	4.95	6.68
P 41ar	3.26	3.57	3.90	3.18	3.56	3.99	3.37	3.67	4.03
P 42ar	0.76	0.93	1.16	0.73	0.93	1.21	0.77	0.96	1.20
P 43ar	0.36	0.52	0.75	0.33	0.52	0.80	0.37	0.54	0.80
P 45ar	0.90	1.11	1.42	0.87	1.10	1.47	0.92	1.14	1.47
P 46ar	3.72	4.07	4.43	3.61	4.06	4.54	3.84	4.19	4.59
P 47ar	1.23	1.47	1.76	1.17	1.46	1.83	1.25	1.50	1.83

Table S2. Results of selected scenarios 1, 4, 8, 9, 12 and 17 (see Table 2) based on RCP 8.5: time averages of the minimum, mean and maximum values of computed hydraulic heads.

	Near future (2021-2040) water table level			Mid-term (2041-2060) water table level			Long-term (2081-2098) water table level		
ID_WELL (ARPAS network)	Average min [m]	Mean [m]	Average max [m]	Average min [m]	Mean [m]	Average max [m]	Average min [m]	Mean [m]	Average max [m]
17PZ008ar	0.01	0.10	0.27	0.01	0.11	0.31	0.01	0.10	0.31
P 01ar	0.47	0.59	0.74	0.48	0.60	0.79	0.46	0.58	0.77
P 02ar	0.79	0.92	1.07	0.81	0.94	1.12	0.78	0.91	1.10
P 03ar	1.62	1.80	2.14	1.63	1.80	2.24	1.61	1.79	2.21
P 04ar	0.82	0.98	1.16	0.83	0.99	1.20	0.80	0.96	1.17
P 05ar	0.78	0.96	1.17	0.79	0.96	1.21	0.75	0.93	1.17
P 06ar	1.31	1.51	1.73	1.33	1.52	1.77	1.27	1.48	1.72
P 07ar	1.59	1.78	1.97	1.62	1.79	2.01	1.54	1.74	1.97
P 08ar	1.87	2.12	2.38	1.91	2.15	2.43	1.82	2.09	2.39
P 09ar	2.12	2.38	2.64	2.16	2.41	2.70	2.07	2.35	2.66
P 10ar	1.44	1.67	1.89	1.47	1.68	1.93	1.40	1.62	1.86
P 11ar	2.57	2.80	3.03	2.59	2.81	3.07	2.50	2.75	3.02
P 12ar	1.44	1.64	1.87	1.46	1.65	1.92	1.40	1.61	1.88
P 13ar	1.34	1.52	1.72	1.36	1.53	1.75	1.30	1.49	1.71
P 14ar	1.99	2.26	2.53	2.03	2.28	2.57	1.93	2.21	2.52
P 15ar	1.82	2.05	2.26	1.87	2.07	2.31	1.78	2.02	2.28
P 16ar	1.87	2.09	2.30	1.92	2.12	2.34	1.84	2.07	2.32
P 17ar	2.32	2.59	2.87	2.35	2.61	2.91	2.25	2.54	2.85
P 20ar	-0.40	0.11	0.99	-0.43	0.12	1.22	-0.40	0.07	1.17
P 21ar	0.73	0.94	1.19	0.74	0.95	1.23	0.72	0.91	1.19
P 22ar	1.57	1.80	2.01	1.60	1.81	2.04	1.53	1.75	1.98
P 23ar	0.28	0.45	0.68	0.29	0.45	0.73	0.28	0.43	0.70
P 24ar	0.72	0.95	1.24	0.72	0.95	1.30	0.70	0.92	1.26
P 26ar	-0.19	0.38	1.35	-0.22	0.39	1.62	-0.18	0.34	1.56
P 27ar	-0.05	0.31	0.90	-0.05	0.33	1.07	-0.05	0.29	1.05
P 28ar	1.82	2.08	2.33	1.86	2.10	2.38	1.77	2.04	2.33
P 29ar	1.95	2.22	2.48	1.99	2.24	2.52	1.89	2.17	2.46
P 30ar	0.94	1.19	1.44	0.95	1.20	1.49	0.92	1.15	1.43
P 31ar	-1.05	-1.02	-0.96	-1.05	-1.02	-0.95	-1.05	-1.03	-0.95
P 32ar	-0.61	-0.59	-0.57	-0.61	-0.59	-0.56	-0.61	-0.59	-0.56
P 34ar	1.56	1.79	1.94	1.58	1.79	1.95	1.51	1.73	1.90
P 35ar	1.28	1.47	1.68	1.31	1.49	1.72	1.25	1.45	1.69
P 36ar	0.40	0.53	0.70	0.41	0.53	0.75	0.39	0.51	0.72
P 37ar	0.52	0.67	0.86	0.53	0.67	0.90	0.50	0.65	0.87
P 38ar	0.40	0.60	0.87	0.40	0.60	0.93	0.39	0.57	0.90
P 39ar	2.09	2.74	3.79	2.06	2.76	4.06	2.08	2.69	4.05
P 40ar	3.40	4.72	6.26	3.48	4.76	6.55	3.35	4.56	6.31
P 41ar	3.22	3.54	3.86	3.27	3.57	3.91	3.13	3.48	3.85
P 42ar	0.74	0.93	1.15	0.75	0.93	1.19	0.73	0.90	1.15
P 43ar	0.34	0.51	0.73	0.35	0.52	0.79	0.34	0.49	0.76
P 45ar	0.89	1.10	1.39	0.89	1.11	1.45	0.86	1.07	1.42
P 46ar	3.66	4.04	4.40	3.72	4.06	4.44	3.54	3.96	4.38
P 47ar	1.19	1.46	1.74	1.21	1.46	1.79	1.16	1.41	1.72