

Table 1. Average of climatic elements in NW Anatolia according to Bandırma Meteorological station since 1933

Elements	Jan I	Feb. II	Mar III	Apr IV	May V	J VI	J VII	Aug VIII	Sept IX	Oct X	Nov. XI	Dec XII
Precipitation (mm)	102.2	83.6	67.5	52.5	35.8	26.7	13.1	13.5	31.9	63.7	94.9	120.3
Temperature (°C)	5.3	6.0	7.5	12.0	16.5	21.1	23.3	23.4	20.2	15.5	11.2	7.7
Humidity (%)	77.4	75.7	74.0	72.8	71.0	66.6	69.9	69.9	67.0	73.5	73.9	77.7
Evaporation (mm)	7.5	7.2	7.4	8.6	12.3	14.0	14.6	18.8	12.0	10.5	8.5	6.9
Wind	Mean speed of weak winds = 4 m/s “ “ moderate winds =8 m/s Mximum “ “ “ 25 m/s Wind from 25 ⁰ NE makes 60 % of winds of a year											

Table 2. Annual water and suspended sediment discharge into Lake Manyas by means of River Kocacay (calculated from EIE 2000)

Measurements YEARS	Discharge (m ³ /s)			Concentration ppm			Sediment Load (ton/day)			Sand in suspended load, mean (%)
	Mean	Max.	Min.	Mean	Max.	Min	Mean	Max.	Min.	
1971	11.4	21.2	0.9	126.1	245	73	131.5	431.9	6.7	18.37
1972	21.7	106.7	0.6	293.8	1070	63	1522.2	9664.2	5.4	12.18
1973	14.8	50.7	0.7	157	470	45	139.1	395.4	7.7	0.0
1974	37.3	216.6	0.5	204.7	813	32	1886.6	15214.7	5.0	0.0
1975	19.2	79.6	0.9	114.9	319.6	32	297.1	2194.0	4.2	0.0
1976	23.8	71.2	1.0	396	1890	27	1394.2	7136	2.5	14.5
1977	7.97	17.0	0.3	51.5	118.0	15	34.04	128.4	1.3	34.0
1978	48.0	364.3	0.9	141.5	470	35	1699	14793.5	3.8	29.4
1979	13.5	58.6	0.6	82.6	249.0	23	171.4	1260.7	3.0	32.5
1980	2874	103.2	0.9	338.0	2180	30	1967.2	19438	3.0	7.8
1981	130.6	1088	0.9	383.5	2120	25	19249.4	199286.7	2.0	0.0
1982	15.8	76.8	0.5	94.5	266.0	26	242.4	1765.2	2.6	0.0
1983	15.8	68.6	0.6	129.9	746.0	15	482.4	4421.6	3.3	13.7
1984	24.1	96.3	0.6	162.3	797.0	24	431.4	3145.0	1.8	10.1
1985	18.7	133.5	0.2	896.8	8298.0	17	8860.5	95710.3	0.4	12.5
1986	42.2	354.2	0.1	213.4	1344.0	11	3716.5	41135.4	0.2	16.5
1987	42.5	181.1	0.07	298.6	1451.0	15	862.0	18556.4	0.5	15.3
1988	11.6	55.0	0.2	52.1	128.0	20	57.1	290.3	0.6	4.4
1989	3.8	9.6	0.1	145.8	833.0	17	78.1	694.0	0.1	8.0
1990	14.5	107.9	0.2	16.8	1367.0	18	1286.7	12744.3	0.7	11.0
1991	10.9	32.4	0.4	221.9	1551.8	24	450.5	3576.1	1.4	-
1992	23.6	116.5	0.2	237.3	973.5	10	1364.5	9796.6	0.4	-
1993	29.0	217.6	0.2	121.8	604.1	13	1068.4	11357.8	0.6	-

1994	6.7	17.4	0.4	61.8	253.5	16	50.1	195.2	0.2	-
1995	33.9	295.0	0.8	99.8	810.9	10	1762.5	20669.9	1.4	-
1996	9.8	38.8	0.3	134.7	834.5	09	221.9	1369.0	0.4	-
1997	18.4	91.3	0.6	111.6	398.9	14	378.6	1864.7	1.6	-
1998	12.4	34.8	0.5	67.9	187.1	20	75.9	207.9	2.5	-
1999	36.0	150.9	0.8	194.3	958.1	21	1936.6	12492.6	3.5	-
29 years	25.2	1088	0.052	174.6	2180.0	9.0	1861.8	199286.8	0.1	

Table 3. Monthly water discharge and suspended sediment transportation by River Kocacay (calculated from EIE 2000)

Months	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Mean
Water m ³ /s	53.43	56.13	47.16	28.37	8.45	3.16	1.84	0.52	0.54	5.01	12.80	60.16	23.14
load ton/day	3357.4	2320.6	1753.6	885.5	53.16	33.54	34.22	2.59	4.38	272.9	3747.6	8307.9	1421.9

Table 4. Summary of observations about suspended load by main rivers of southern Marmara region (From EIE, 1993; 2000).

Abbreviations: a.s.l :above sea level, AGS: observation interval for water discharge, SGS: observation interval for sediment, Q_s: sediment; Q: water discharge; R²: coefficient constant. Sediment production in AGS and SGS is calculated by means of related formula.

River Name	Net drainage area km ²	EIE Observatory		Observation Interval (year)		AV. SEDIMENT MEASURED IN YEARS					
		Station No	Elevation a.s.l m	Discharge (AGS)	Sediment (SGS)	Key curve for SGS		Quantity ton/year	Production ton.yr ⁻¹ .km ²		
						Equality	R ²		AGS	SGS	
Gönen	1193	210	57	1971-1994	1972-1995	$Q_s=1.9475 \times Q^{1.2485}$	0.816	26.048	24	22	28
Mustafa Kemalpaşa	8480	302	40	1938-1996	1964-1999	$Q_s=1.916 \times Q^{1.7153}$	0.692	1258.143	167	148	58
Kocaçay	2308	314	25	1952-1996	1971-1999	$Q_s=3.4566 \times Q^{1.373}$	0.863	1065.53	115	46	48
Simav	4944	316	32	1952-1996	1964-1999	$Q_s=1.2804 \times Q^{1.6197}$	0.770	372.369	112	94	58
Kocadere	4424	317	02	1964-1996	1979-1999	$Q_s=2.643 \times Q^{1.2452}$	0.727	464.950	115	84	38

Table 5: Major element composition of modern and pre-modern sediments of Lake Manyas. Results of M.6 and M.16 bottom surface samples are from Suliman (1998).

Elements %	St II, 350-352 cm	St II, 400-401 cm	St II, 439-440 cm	M.6 (=St II) surface	M.16 (=St III) surface
Na ₂ O	1.09	0.98	0.90	0.17	0.15
MgO	3.12	3.10	2.91	2.19	2.19
Al ₂ O ₃	20.79	21.88	22.36	19.57	20.07
SiO ₂	58.45	58.80	60.39	51.32	52.95

<i>CaO</i>	4.14	3.00	1.82	0.19	0.14
<i>TiO₂</i>	1.03	0.95	0.96	0.68	0.75
<i>MnO</i>	0.14	0.13	0.10	0.74	0.64
<i>Fe₂O₃</i>	9.00	9.07	8.44	8.33	8.16
<i>K₂O</i>	1.88	1.96	1.94	2.01	2.19
<i>Loss-on- ignition</i>	-	-	-	13.85	12.75
<i>total</i>	99.64	99.87	99.82	99.05	99.59

Table 6. C¹⁴ ages and sedimentation rates in the southern Marmara region. a- from Cagatay et al (2000), b- from Bottema et al (2001), c is a date of ¹³⁷Cs,

Site, location, water depth	core depth,m	Age, yr BP	sedimentation rates, cm.yr ⁻¹
13, southern shelf, -70 m	1.82-1.84	3540 +190/-185	0.052 (a)
22, depression on shelf, -110 m	1.92-1.94	4370 +200/-195	0.044 (a)
88, southern shelf, -49 m	0.92-0.94	2550 ±65	0.036 (a)
GM-2, southern shelf, -37 m	1.72-1.74	3640±175	0.047 (a)
GM-6, southern shelf, -99 m,	2.17-2.19	11,805 +485/-455	0.018 (a)
GM-7, margin, -370 m,	0.99-1.01	7735± 125	0.013 (a)
GM-7, margin, -370 m,	2.22-2.24	12,955+350/-335	0.023 (a)
LM, Lake Manyas, onshore	2,80	3200	0.08 (b)
LA, Lake Ulubat, southshore	6.89-6.90	3200	0.21 (b)
St-3, Lake Manyas	0.25	45	0.44 (c)
St-3, Lake Manyas	4.09	1710±40	0.27
St-3, Lake Manyas	10,80	3750±40	0.26