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MOORED CURRENT METER DATA FROM L'ETANG INLET, NEW BRUNSWICK, 1988-1990

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Les établissements des Sciences et levés océaniques dans les régions et à l'administration centrale ont cessé de publier leurs diverses séries de rapports en décembre 1981. Une liste complète de ces publications figure dans le volume 39, Index des publications 1982, du *Journal canadien des sciences halieutiques et aquatiques*. La série actuelle a commencé avec la publication du rapport numéro 1 en janvier 1982.

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Abstract

Trites, R.W.,and L. Petrie. 1993. Moored current meter data from L'Etang Inlet, New Brunswick, 1988-1990. Can. Data Rep. Hydrogr. Ocean Sci. 121: iii + 121pp.

As part of a multi-disciplinary research program on the environmental impact of salmon aquaculture, a current meter mooring program was undertaken in L'Etang Inlet, New Brunswick, during the period December 1988 - July 1990. Current speeds and directions together with temperature and salinity data are presented in graphical form. Residual currents and tidal constituents are also given.

Résumé

Trites, R.W.,and L. Petrie. 1993. Moored current meter data from L'Etang Inlet, New Brunswick, 1988-1990. Can. Data Rep. Hydrogr. Ocean Sci. 121: iii + 121pp.

Dans le cadre d'un programme d'étude multidisciplinaire sur l'impact environnemental de l'aquiculture du saumon, on a procédé au mouillage de courantomètres dans l'anse Letang, au Nouveau-Brunswick, de décembre 1988 à juillet 1990. On présente ici, sous forme graphique, des données sur la vitesse et la direction des courants, sur la température et la salinité de l'eau, ainsi que sur les courants résiduels et sur les composantes des marées.

Introduction

Salmon aquaculture in southwestern New Brunswick has developed into a major industry during the last ten years. Raising salmon in sea cages is an intensive form of monoculture with biomass reaching 15-20 kg/m^3 of sea-water within the cages. Concerns have been voiced by traditional fishermen, scientists, habitat managers, and the general public about the potential environmental impacts of fish farms on coastal habitats (Rosenthal et al, 1988; Silvert et al, 1990; Wildish et al, 1990). High concentrations of caged fish have a pronounced oxygen demand and release large amounts of organic and inorganic wastes. Fish farmers themselves are concerned that wastes from their farms will have an adverse effect on fish health and growth.

The Science sector of the Department of Fisheries and Oceans, Scotia-Fundy Region, responded to these concerns by initiating a multi-disciplinary research program to quantify the impacts of existing salmon farms in the L'Etang Inlet, New Brunswick, and provide some guideline on the maximum holding capacity of the Inlet.

A knowledge of the current strengths and patterns in the area as well as the flushing time was seen to be an important cornerstone of the developing research program. The complex bathymetry and irregular shoreline (Fig. 1) meant that providing spatially detailed information on the currents, by direct measurement, would be prohibitively expensive and time consuming. In the developing program, a need was seen for the building of a numerical model with an output that provided detailed maps of both the hydrodynamics (tidal currents and flushing) and altered water quality (enhanced plant nutrients and lowered dissolved oxygen levels) arising from wastes released from existing or proposed new farm sites. To provide calibration and validation of the model, subsequently developed through a contract with ASA Consulting Ltd. (de Margerie et al, 1990), a moored current meter field program was carried out by the Coastal Oceanography Division, Bedford Institute of Oceanography. This report provides information and data from this mooring program.

Currents were measured at a total of nine sites, utilizing one or two current meters at each site (Fig. 1). The field project, commenced in December 1988 with one meter moored at Site 1, was expanded in May 1989, and continued until July 1990. A total of more than seventy meter-months of current meter data was acquired (Table 1).

Instrumentation

Aanderaa current meters (models RCM5, RCM7, RCM8) were used to record current speed and direction, conductivity, and temperature. The accuracies of the meters, as given by the manufacturer, are:

CURRENT SPEED	range 2.5 to 250 cm/sec accuracy of ± 1 cm/sec or ± 2% of actual speed variation, whichever is greater threshold 1.5 cm/sec
CURRENT DIRECTION	range 0° to 360° accuracy ± 5° with speed 5-100 cm/sec resolution 0.35° tilt ≤ 12° from horizontal
CRYSTAL TIMER	accuracy ± 2 sec/day within 0°C to 20°C
TEMPERATURE	range -2.46°C to 21.48°C accuracy ± 0.15°C resolution 0.1% of range response time 12 seconds
CONDUCTIVITY	range 0 to 70 mmho/cm calibration accuracy ± 0.025 mmho/cm resolution 0.1% of range

At each measuring site the mooring consisted of subsurface float(s) (3 ball Viny package or Fairey float), current meter(s), acoustic release (EG&G 723A), and an anchor (railway wheel or chain). Mooring periods varied from one to five months depending on the season. Moorings left in place for two months (July-August) became heavily fouled with marine growth to an extent where, after approximately forty-five days, recorded current speeds decreased to zero and conductivity readings became unreliable (Fig. 2). Very little fouling occurred during winter, even after five months.

Data Analysis

Sampling intervals of current speed and direction, temperature and conductivity, varied from ten to thirty minutes depending on the mooring duration. The raw data were edited to remove isolated spikes and then filtered using a five-weight running mean and subsampled to hourly values. A tidal analysis program in use at the Bedford Institute of Oceanography was employed to calculate amplitudes and phase lags for the standard tidal constituents using a least-squares fit of the data. Tidal current ellipses for each constituent were computed. Residual currents were calculated by subtracting the tidal currents from the measured values. These hourly residuals were further filtered using a Cartwright filter of one hundred twenty-nine weights and a cutoff frequency of 0.74 d^{-1} (period of 1.35 d) and subsampled to one value every six hours and plotted as progressive vector and stick-plot diagrams. The temperature and conductivity values were used to compute salinity using the UNESCO 1980 formula. Tidal analysis, as applied to the current data, was also performed on the salinity and temperature records.

Results

Tidal constituents for currents, temperature, salinity, and residuals for each current meter record (generally a twenty-nine day

analysis) are given in Table II. Hourly values of current speed and direction, salinity and temperature, and progressive vector and stick plots of residual currents are shown in Appendix I. Time is reported as days of the year. For residual currents the abscissa is positive eastward and the ordinate positive northward.

Acknowledgements

We thank all those who contributed to the success of this project, especially R. Boyce, who was responsible for the deployment and recovery of the moorings; the Captain of M.V. Pandalus III , for his cooperation and skillful ship handling; and H. Hayden for assistance with editing and processing the data.

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Table I

Summary of Current Meter Moorings

Site	Mooring Number	Latitude	Longitude	Chart Datum	Inst. Depth	Serial Number	RCM Model	Dates
1	946	45°03.60′	66°49.51′	17.5m	6 m	9354	7P*	88/12/08-89/03/21
1	947	45°03.60′	66°49.51′	17.5m	3.5m	9355	8P	89/05/16-89/07/05
1	947	45°03.60′	66°49.51′	17.5m	13 m	8696	5P	89/05/16-89/07/15
2	948	45°03.34′	66°49.91′	14.5m	2.5m	3392	8P	89/05/16-89/07/15
3	949	45°03.46′	66°51.05′	19.2m	3 m	9354	7P	89/05/16-89/07/15
4	950	45°02.91′	66°49.29′	25 m	4 m	6410	5R*	89/05/16-89/07/15
4	950	45°02.91′	66°49.29′	25 m	20 m	8695	5P	89/05/16-89/07/15
5	951	45°02.75′	66°49.80′	17.6m	3 m	5394	8P	89/05/16-89/07/15
1	969	45°03.60′	66°49.51′	17.5m	5 m	4195	5P	89/07/05-89/09/14
1	969	45°03.60′	66°49.51′	17.5m	12.5m	7525	5P	89/07/05-89/09/14
2	970	45°03.44′	66°49.83′	14.9m	5 m	1944	5	89/07/05-89/09/14
6	971	45°03.33′	66°49.11′	17 m	5 m	4421	8P	89/07/05-89/09/14
6	971	45°03.33′	66°49.11'	17 m	15 m	8697	5P	89/07/05-89/09/14
7	972	45°03.62′	66°49.06′	17.1m	5 m	6400	5P	89/07/05-89/09/14
8	973	45°02.07′	66°50.12′	17 m	5 m	5571	5R	89/07/05-89/09/14
1	983	45°03.60′	66°49.51′	17.5m	5 m	5394	8P	89/09/14-89/10/17
1	983	45°03.60′	66°49.51′	17.5m	12.5m	8696	5P	89/09/14-89/10/17

* P = paddle rotor, R = Savonius rotor

Table I continued

Summary of Current Meter Moorings

Site	Mooring Number	Latitude	Longitude	Chart Datum	Inst. Depth	Serial Number	RCM Model	Dates
6	984	45°03.33′	66°49.11′	17 m	5 m	9355	8P	89/09/14-89/10/17
6	984	45°03.33′	66°49.11′	17 m	15 m	8695	5P	89/09/14-89/10/17
9	985	45°02.35′	66°48.89′	26.4m	4 m	9354	7P	89/09/14-89/10/17
9	985	45°02.35′	66°48.89′	26.4m	20.5m	6410	5R	89/09/14-89/10/17
1	996	45°03.60′	66°49.51′	17.5m	5 m	3392	8P	89/10/17-89/11/27
1	996	45°03.60′	66°49.51′	17.5m	12.5m	4421	8P	89/10/17-89/11/27
6	997	45°03.33′	66°49.11′	17 m	5 m	7525	5P	89/10/17-89/11/27
6	997	45°03.33′	66°49.11′	17 m	15 m	9328	8P	89/10/17-89/11/27
9	998	45°02.35′	66°48.89′	26.5m	5 m	1944	5	89/10/17-89/11/27
9	998	45°02.35′	66°48.89′	26.5m	20.5m	9145	7P	89/10/17-89/11/27
1	999	45°03.60′	66°49.51′	17.5m	5 m	6410	5R	89/11/27-90/05/03
1	999	45°03.60′	66°49.51′	17.5m	12.5m	8697	5P	89/11/27-90/05/03
4	1000	45°02.91′	66°49.29′	25 m	5.7m	5394	8P	89/11/27-90/05/03
4	1000	45°02.91′	66°49.29′	25 m	19.7m	8696	5P	89/11/27-90/05/03
6	1001	45°03.33′	66°49.11′	17 m	5 m	9355	8P	89/11/27-90/05/03
6	1001	45°03.33′	66°49.33′	17 m	15 m	7123	5P	89/11/27-90/05/03
4*	1014	45°02.91′	66°49.29′	25 m	5 m	7525	5P	90/02/16-90/05/03
4*	1014	45°02.91′	66°49.29′	25 m	19 m	5573	5P	90/02/16-90/05/03

* re-laying of mooring 1000 accidentally dragged off-site

Table I continued

Summary of Current Meter Moorings

Site	Mooring Number	Latitude	Longitude	Chart Datum	Inst. Depth	Serial Number	RCM Model	Dates
1	1015	45°03.60′	66°49.51′	17.5m	5 m	4421	8P	90/05/03-90/07/18
1	1015	45°03.60′	66°49.51′	17.5m	12.5m	2664	5P	90/05/03-90/07/18
4	1016	45°02.91′	66°49.29′	25 m	5 m	5394	8P	90/05/03-90/07/18
4	1016	45°02.91′	66°49.29′	25 m	19 m	4271	5P	90/05/03-90/07/18
6	1017	45°03.33′	66°49.11′	17 m	5 m	8696	5P	90/05/03-90/07/18
6	1017	45°03.33′	66°49.33′	17 m	15 m	5001	8P	90/05/03-90/07/18

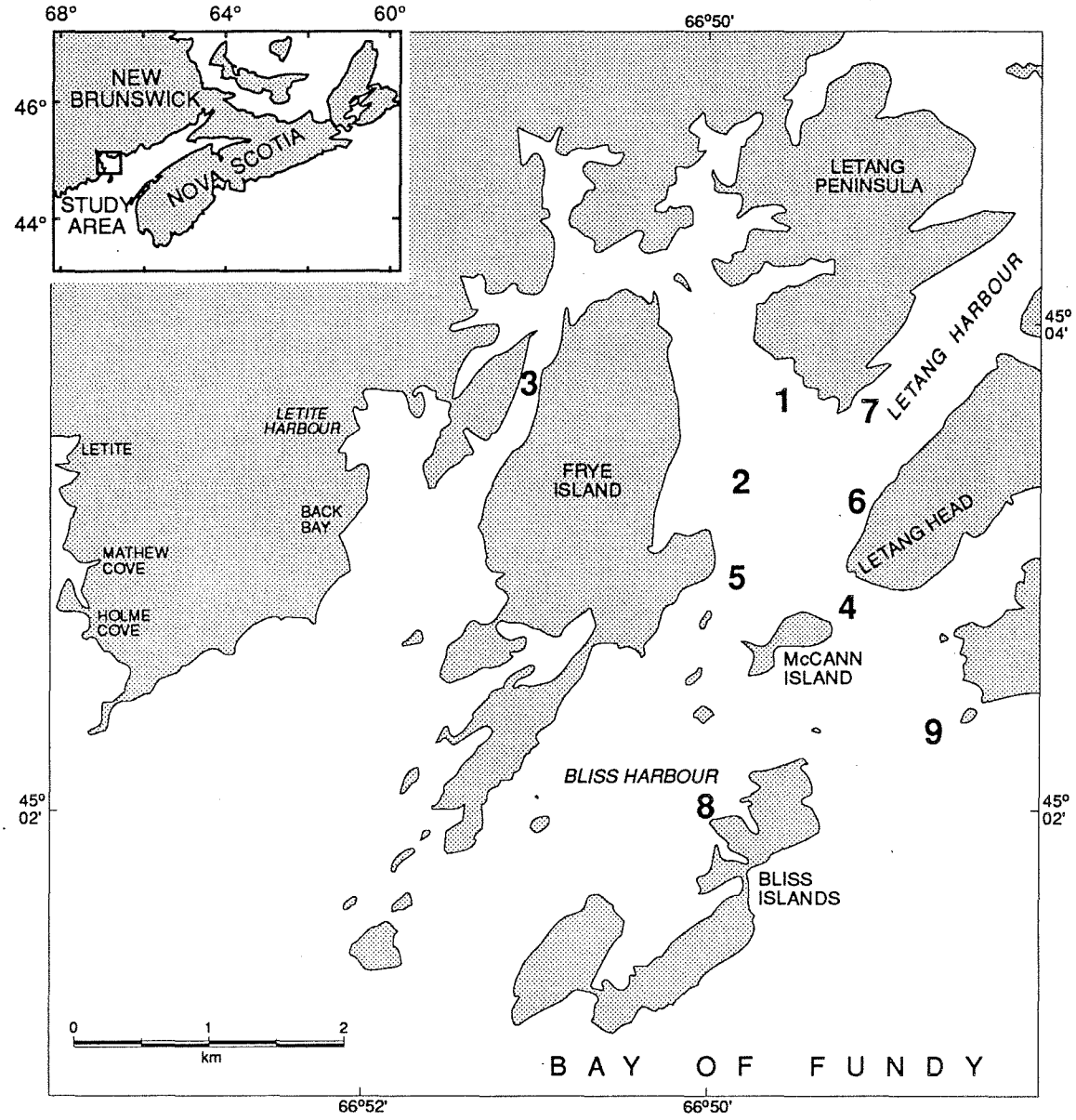


Fig. 1 Map of L'Etang Inlet showing mooring sites.

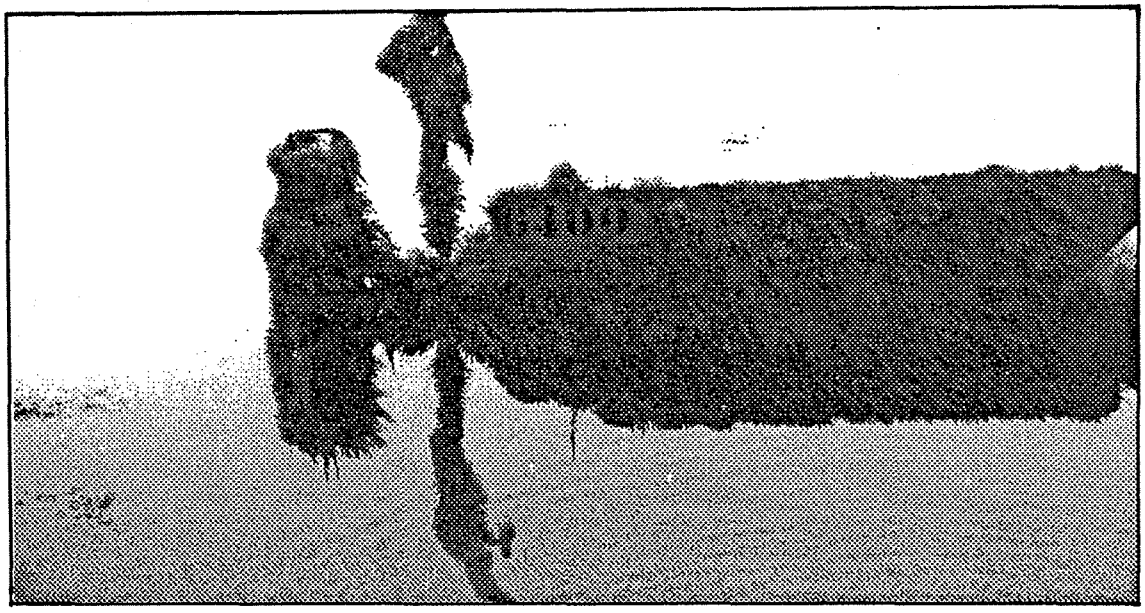


Fig. 2 Current meter and vane heavily fouled with marine growth.

Table II

Tidal Analysis for Currents, Temperature and Salinity

Site (Mooring #) (Depth M)	Constituent	29 days centered at day.356, 1988					Res. current: 0.051 M/S 031 deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						4.873		32.588	
1	K1	.004	157	349	.000	A	.026	294	.021	154
	O1	.004	251	318	.001	A	.040	020	.039	020
	M2	.071	075	325	.044	A	.202	127	.020	179
(946)	S2	.018	073	349	.004	A	.042	120	.071	184
	M4	.034	344	113	.012	A	.081	107	.062	082
	MS4	.010	355	110	.003	A	.033	000	.077	006
(6M)	MF	.006	218	352	.001	C	.455	210	.021	062
	N2	.014	005	338	.003	A	.020	239	.048	002

Site (Mooring #) (Depth M)	Constituent	68 days centered at day 009, 1989					Res. current: 0.053 M/S 027 deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0									
1	K1	.007	137	350	.001	C				
	O1	.003	028	129	.000	A				
	M2	.078	072	327	.042	A				
(946)	S2	.036	086	336	.000	A				
	M4	.035	335	117	.014	A				
	MS4	.014	003	117	.005	A				
(6M)	MF	.005	218	130	.000	C				
	N2	.017	016	339	.003	A				

Table II continued

Tidal Analysis for Currents, Temperature and Salinity

Site	Constituent	91 days centered at day 020, 1989					Res. current: 0.052 M/S 026 deg.T			
		CURRENT ELLIPSE								
(Mooring #)		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
(Depth M)		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0									
1	K1	.004	137	004	.002	A				
	O1	.003	027	134	.001	A				
	M2	.077	071	327	.042	A				
(946)	S2	.012	106	335	.005	A				
	M4	.033	337	115	.013	A				
	MS4	.013	008	119	.005	A				
(6M)	MF	.003	065	316	.001	A				
	N2	.016	018	338	.004	A				

Site	Constituent	29 days centered at day 151, 1989					Res. current: 0.050 M/S 034 deg.T			
		CURRENT ELLIPSE								
(Mooring #)		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
(Depth M)		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						6.434			
1	K1	.003	049	059	.003	A	.023	267		
	O1	.002	350	059	.000	C	.050	045		
	M2	.072	.034	012	.055	A	.573	284		
(947)	S2	.012	.045	003	.006	A	.183	314		
	M4	.020	114	042	.007	A	.033	195		
	MS4	.005	037	043	.003	C	.028	182		
(3.5M)	MF	.007	150	349	.004	A	.359	319		
	N2	.019	318	063	.001	A	.078	342		

Table II continued

Tidal Analysis for Currents, Temperature and Salinity

Site	Constituent	29 days centered at day 151, 1989					Res. current: 0.070 M/S 039 deg.T			
		CURRENT ELLIPSE								
(Mooring #)		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
(Depth M)		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						5.874		30.943	
1	K1	.003	105	065	.002	A	.044	276	.011	291
	O1	.006	335	107	.003	A	.040	036	.043	228
	M2	.115	035	003	.037	A	.398	290	.178	111
(947)	S2	.019	114	318	.006	A	.083	034	.083	176
	M4	.027	049	030	.002	A	.033	227	.071	073
	MS4	.006	152	009	.000	A	.017	070	.073	338
(13M)	MF	.008	125	351	.002	C	.451	311	.050	201
	N2	.034	022	336	.003	A	.122	286	.079	111

Site	Constituent	29 days centered at day 201, 1989					Res. current: 0.080 M/S 022 deg.T			
		CURRENT ELLIPSE								
(Mooring #)		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
(Depth M)		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						10.526			
1	K1	.006	100	043	.002	A	.037	262		
	O1	.006	012	074	.002	A	.024	346		
	M2	.117	039	017	.050	A	.364	283		
(969)	S2	.018	081	006	.006	A	.047	323		
	M4	.024	094	036	.005	A	.067	157		
	MS4	.009	095	056	.004	A	.031	218		
(5M)	MF	.003	101	127	.002	C	.256	218		
	N2	.018	358	017	.007	A	.089	252		

Table II continued

Tidal Analysis for Currents, Temperature and Salinity

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 272, 1989					Res. current: 0.047 M/S 021 deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						11.685		32.444	
1	K1	.003	075	100	.001	A	.087	258	.037	060
	O1	.003	141	081	.001	A	.061	037	.040	059
	M2	.072	029	021	.042	A	.110	284	.056	132
(983)	S2	.012	072	353	.007	A	.024	196	.034	169
	M4	.025	053	053	.002	A	.041	275	.051	302
	MS4	.012	078	059	.001	A	.043	276	.071	266
(5M)	MF	.006	066	011	.003	A	.340	105	.127	277
	N2	.026	012	013	.017	A	.110	208	.045	226

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 305, 1989					Res. current: 0.075 M/S 042 deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						10.032		32.594	
1	K1	.004	043	038	.002	A	.022	303	.021	089
	O1	.005	289	063	.002	A	.026	266	.042	280
	M2	.133	043	012	.073	A	.040	101	.066	097
(996)	S2	.021	051	020	.012	A	.013	160	.048	146
	M4	.043	106	048	.005	C	.020	075	.063	073
	MS4	.019	103	050	.001	A	.028	115	.078	123
(12.5M)	MF	.010	134	010	.000	A	.090	185	.039	068
	N2	.029	006	007	.020	A	.044	073	.063	053

Table II continued

Tidal Analysis for Currents, Temperature and Salinity

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 346, 1989					Res. current: 0.089 M/S 019deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						4.500		32.644	
1	K1	.006	100	009	.000	A	.053	316	.021	147
	O1	.004	050	338	.001	C	.053	353	.036	350
	M2	.123	028	015	.054	A	.257	127	.025	164
(999)	S2	.025	070	004	.012	A	.023	213	.073	216
	M4	.031	107	048	.005	C	.127	088	.060	030
	MS4	.009	135	053	.004	C	.035	025	.075	352
(5M)	MF	.009	205	008	.000	C	.525	240	.096	075
	N2	.031	354	003	.013	A	.042	035	.049	027

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 010, 1990					Res. current: 0.091 M/S 019deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						2.263		32.815	
1	K1	.006	107	358	.001	A	.016	273	.018	153
	O1	.003	022	091	.001	A	.029	243	.045	323
	M2	.133	032	014	.055	A	.178	128	.036	173
(999)	S2	.024	068	011	.015	A	.011	167	.056	159
	M4	.040	107	046	.008	C	.077	092	.054	352
	MS4	.007	151	046	.002	C	.010	118	.079	307
(5M)	MF	.014	293	013	.002	C	.001	126	.032	107
	N2	.028	337	011	.014	A	.025	234	.060	340

Table II continued

Tidal Analysis for Currents, Temperature and Salinity

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 039, 1990					Res. current: 0.070 M/S 010deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						1.741		32.279	
1	K1	.003	143	341	.001	A	.039	011	.019	161
	O1	.004	185	342	.000	C	.018	236	.045	291
	M2	.130	027	023	.039	A	.141	109	.068	117
(999)	S2	.022	059	009	.003	A	.029	150	.069	145
	M4	.033	089	046	.010	C	.016	061	.060	318
	MS4	.014	126	025	.003	C	.017	130	.072	256
(5M)	MF	.013	254	046	.003	A	.388	000	.036	186
	N2	.023	004	359	.008	A	.004	222	.046	315

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 068, 1990					Res. current: 0.075 M/S 014deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						1.302		32.046	
1	K1	.004	038	081	.000	A	.045	091	.017	219
	O1	.002	009	103	.001	A	.010	131	.051	259
	M2	.128	026	021	.047	A	.054	107	.051	131
(999)	S2	.017	066	009	.011	A	.026	098	.044	113
	M4	.032	091	040	.012	C	.012	061	.054	277
	MS4	.016	119	049	.001	C	.009	022	.078	211
(5M)	MF	.010	025	000	.001	A	.119	206	.051	100
	N2	.019	027	324	.013	A	.062	114	.063	253

Table II continued

Tidal Analysis for Currents, Temperature and Salinity

Site	Constituent	29 days centered at day 097, 1990					Res. current: 0.068 M/S 014 deg.T			
		CURRENT ELLIPSE								
(Mooring #)		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
(Depth M)		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						2.171		31.387	
1	K1	.006	126	346	.004	A	.075	117	.033	187
	O1	.004	342	078	.000	C	.011	116	.047	223
	M2	.117	022	023	.039	A	.092	285	.127	109
(999)	S2	.021	061	016	.007	A	.028	242	.075	117
	M4	.018	078	036	.014	C	.003	026	.053	254
	MS4	.009	116	057	.003	C	.008	194	.078	165
(5M)	MF	.009	113	338	.005	C	.109	265	.149	154
	N2	.018	341	011	.003	A	.021	347	.041	251

Site	Constituent	29 days centered at day 346, 1989					Res. current: 0.079 M/S 034 deg.T			
		CURRENT ELLIPSE								
(Mooring #)		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
(Depth M)		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						4.470		32.609	
1	K1	.004	088	038	.001	A	.050	316	.064	069
	O1	.005	057	000	.000	C	.053	354	.075	069
	M2	.119	030	021	.059	A	.253	123	.074	321
(999)	S2	.026	091	004	.013	A	.039	157	.144	290
	M4	.034	112	057	.002	C	.098	077	.116	092
	MS4	.008	127	062	.000	A	.045	015	.102	060
(12.5M)	MF	.007	197	010	.000	C	.528	241	.073	032
	N2	.035	006	006	.016	A	.097	013	.101	092

Table II continued

Tidal Analysis for Currents, Temperature and Salinity

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 010, 1990					Res. current: 0.087 M/S 028 deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						2.283		32.774	
1	K1	.007	122	358	.001	A	.014	283	.017	162
	O1	.004	029	094	.001	A	.036	251	.044	323
	M2	.122	032	019	.068	A	.158	132	.036	180
(999)	S2	.021	061	019	.013	A	.022	167	.054	160
	M4	.043	116	050	.003	C	.072	101	.050	352
	MS4	.008	158	080	.001	A	.015	104	.077	305
(12.5M)	MF	.011	301	013	.002	A	.021	114	.029	113
	N2	.024	334	010	.013	A	.032	234	.055	339

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 039, 1990					Res. current: 0.077 M/S 029 deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						1.783		32.225	
1	K1	.003	349	123	.000	C	.038	010	.016	165
	O1	.003	351	101	.001	A	.015	244	.041	289
	M2	.131	036	013	.068	A	.115	110	.052	135
(999)	S2	.025	090	353	.016	A	.019	151	.061	148
	M4	.045	099	045	.010	C	.021	099	.051	323
	MS4	.016	153	021	.001	C	.010	156	.071	252
(12.5M)	MF	.009	331	021	.003	C	.392	002	.023	201
	N2	.026	018	352	.013	A	.009	236	.050	310

Table II continued

Tidal Analysis for Currents, Temperature and Salinity

Site	Constituent	29 days centered at day 068, 1990					Res. current: 0.076 M/S 027 deg.T			
		CURRENT ELLIPSE								
(Mooring #)		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
(Depth M)		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						1.305		31.900	
1	K1	.002	079	125	.000	C	.037	100	.014	186
	O1	.005	010	092	.001	A	.006	131	.049	259
	M2	.124	033	015	.066	A	.051	104	.057	148
(999)	S2	.017	123	316	.014	A	.020	102	.044	112
	M4	.040	104	043	.002	C	.010	073	.052	275
	MS4	.015	129	062	.008	A	.006	055	.082	210
(12.5M)	MF	.010	039	014	.001	C	.105	210	.021	043
	N2	.018	033	348	.011	A	.046	115	.063	261

Site	Constituent	29 days centered at day 097, 1990					Res. current: 0.079 M/S 032 deg.T			
		CURRENT ELLIPSE								
(Mooring #)		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
(Depth M)		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						2.095		31.206	
1	K1	.008	226	329	.000	C	.059	138	.040	234
	O1	.005	146	319	.001	A	.005	057	.037	230
	M2	.131	032	006	.048	A	.086	294	.108	121
(999)	S2	.035	075	358	.009	A	.021	220	.065	110
	M4	.041	075	043	.012	C	.015	251	.036	259
	MS4	.021	094	023	.006	C	.009	211	.081	159
(12.5M)	MF	.014	074	028	.000	A	.099	252	.123	145
	N2	.019	301	092	.004	A	.020	338	.052	244

Table II continued

Tidal Analysis for Currents, Temperature and Salinity

Site	Constituent	29 days centered at day 138, 1990					Res. current: 0.063 M/S 023 deg.T			
		CURRENT ELLIPSE								
(Mooring #)		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
(Depth M)		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						5.364		30.583	
1	K1	.004	021	094	.002	A	.028	176	.029	242
	O1	.005	119	049	.001	C	.028	087	.028	313
	M2	.100	020	025	.054	A	.279	285	.178	101
(1015)	S2	.015	092	022	.004	A	.030	012	.055	189
	M4	.023	127	081	.001	C	.011	009	.082	199
	MS4	.003	070	105	.000	C	.016	171	.083	036
(5M)	MF	.004	003	128	.002	A	.314	280	.344	220
	N2	.031	336	029	.005	A	.041	243	.052	162

Site	Constituent	29 days centered at day 167, 1990					Res. current: 0.067 M/S 018 deg.T			
		CURRENT ELLIPSE								
(Mooring #)		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
(Depth M)		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						7.793		31.099	
1	K1	.005	171	333	.002	A	.046	233	.016	290
	O1	.005	115	128	.001	C	.034	040	.036	277
	M2	.105	031	019	.051	A	.369	283	.064	109
(1015)	S2	.026	036	018	.006	C	.071	152	.052	108
	M4	.021	117	062	.001	A	.032	175	.059	157
	MS4	.010	073	017	.003	C	.002	222	.081	351
(5M)	MF	.008	100	044	.007	A	.370	299	.132	165
	N2	.036	334	022	.006	A	.094	259	.033	164

Table II continued

Tidal Analysis for Currents, Temperature and Salinity

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 186, 1990					Res. current: 0.065 M/S 013 deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						9.492		31.228	
1	K1	.006	136	356	.000	C	.037	230	.019	288
	O1	.002	188	043	.001	A	.041	000	.040	149
	M2	.113	029	022	.046	A	.422	284	.066	128
(1015)	S2	.019	078	007	.003	A	.047	297	.063	119
	M4	.016	097	041	.009	C	.044	098	.051	317
	MS4	.008	112	066	.001	A	.023	255	.074	244
(5M)	MF	.008	305	345	.006	C	.133	098	.152	074
	N2	.019	352	012	.005	A	.059	242	.037	182

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 138, 1990					Res. current: 0.077 M/S 037 deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						4.462		31.399	
1	K1	.006	122	353	.001	A	.023	297	.021	224
	O1	.004	038	069	.002	A	.020	120	.031	306
	M2	.130	035	003	.044	A	.249	296	.180	112
(1015)	S2	.025	098	349	.004	A	.030	266	.054	123
	M4	.040	067	038	.007	C	.011	269	.060	202
	MS4	.005	068	020	.001	C	.010	131	.071	031
(12.5M)	MF	.006	187	029	.003	A	.220	264	.279	240
	N2	.042	349	008	.006	A	.032	209	.052	187

Table II continued

Tidal Analysis for Currents, Temperature and Salinity

Site	Constituent	29 days centered at day 167, 1990					Res. current: 0.079 M/S 036 deg.T			
		CURRENT ELLIPSE								
(Mooring #)		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
(Depth M)		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						6.385		32.341	
1	K1	.005	167	342	.001	A	.030	264	.024	278
	O1	.001	167	352	.000	C	.019	048	.033	287
	M2	.139	044	001	.045	A	.268	287	.012	107
(1015)	S2	.025	350	055	.006	C	.089	127	.043	125
	M4	.042	087	039	.007	C	.033	258	.064	158
	MS4	.007	295	327	.002	A	.006	065	.083	350
(12.5M)	MF	.012	093	009	.000	A	.341	283	.099	238
	N2	.034	330	007	.024	A	.069	279	.039	201

Site	Constituent	29 days centered at day 186, 1990					Res. current: 0.078 M/S 035 deg.T			
		CURRENT ELLIPSE								
(Mooring #)		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
(Depth M)		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						7.680		32.848	
1	K1	.004	130	346	.001	A	.027	280	.026	294
	O1	.002	283	105	.000	A	.014	351	.031	153
	M2	.139	044	357	.053	A	.245	294	.026	250
(1015)	S2	.016	111	337	.010	A	.047	282	.053	120
	M4	.035	086	052	.013	C	.021	265	.052	313
	MS4	.008	161	035	.001	A	.007	232	.075	245
(12.5M)	MF	.007	351	003	.000	A	.062	107	.173	064
	N2	.028	012	345	.019	A	.027	215	.043	190

Table II continued

Tidal Analysis for Currents, Temperature and Salinity

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 151, 1989					Res. current: 0.008 M/S 140 deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						6.702		30.627	
2	K1	.003	337	003	.001	A	.020	176	.028	259
	O1	.005	338	023	.000	C	.040	098	.018	243
	M2	.106	272	032	.016	A	.622	286	.322	108
(948)	S2	.025	315	003	.010	A	.239	293	.183	116
	M4	.022	342	339	.010	A	.093	217	.093	066
	MS4	.009	308	040	.006	A	.051	205	.098	350
(2.5M)	MF	.013	342	002	.002	A	.280	331	.210	254
	N2	.027	233	012	.000	C	.128	015	.095	205

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 201, 1989					Res. current: 0.009 M/S 161 deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						10.589		31.748	
2	K1	.002	340	044	.000	C	.040	250	.014	323
	O1	.004	355	090	.002	C	.038	046	.042	051
	M2	.116	285	035	.022	A	.386	304	.070	128
(970)	S2	.019	298	025	.004	A	.037	072	.051	151
	M4	.031	336	359	.006	A	.121	234	.065	144
	MS4	.016	018	013	.000	A	.009	192	.078	200
(5M)	MF	.012	116	018	.001	A	.248	213	.080	094
	N2	.023	230	030	.001	A	.067	312	.055	005

Table II continued

Tidal Analysis for Currents, Temperature and Salinity

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 151, 1989					Res. current: 0.014 M/S 228 deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						6.673		30.707	
3	K1	.005	128	030	.001	C	.036	177	.023	282
	O1	.006	131	011	.002	C	.043	106	.021	267
	M2	.242	022	024	.002	C	.692	279	.222	101
(949)	S2	.036	061	022	.001	C	.261	320	.028	191
	M4	.033	136	023	.002	A	.096	130	.051	239
	MS4	.008	177	019	.000	C	.016	056	.063	107
(3M)	MF	.002	049	015	.001	C	.120	305	.148	255
	N2	.031	325	019	.000	A	.059	295	.042	183

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 151, 1989					Res. current: 0.018 M/S 289 deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						5.533		31.137	
4	K1	.011	293	135	.001	C	.040	270	.017	249
	O1	.009	245	124	.001	A	.029	346	.040	196
	M2	.532	013	321	.020	C	.423	252	.196	073
(950)	S2	.078	238	135	.004	A	.088	343	.082	118
	M4	.036	047	109	.008	C	.079	067	.079	299
	MS4	.013	081	061	.002	A	.016	338	.077	213
(20M)	MF	.006	161	054	.002	A	.409	308	.014	204
	N2	.086	147	129	.015	C	.137	211	.077	039

Table II continued

Tidal Analysis for Currents, Temperature and Salinity

Site	Constituent	29 days centered at day 346, 1989					Res. current: 0.015 M/S 191 deg.T			
		CURRENT ELLIPSE								
(Mooring #)		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
(Depth M)		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						4.555		32.634	
4	K1	.016	108	333	.000	A	.024	289	.023	120
	O1	.012	095	333	.000	C	.035	340	.033	329
	M2	.544	009	330	.017	C	.531	062	.053	077
(1000)	S2	.091	048	332	.001	C	.022	081	.068	172
	M4	.023	314	348	.001	A	.202	333	.074	301
	MS4	.010	338	343	.003	A	.037	267	.079	265
(5.7M)	MF	.003	330	019	.001	A	.501	239	.089	072
	N2	.113	324	326	.006	C	.151	012	.060	003

Site	Constituent	29 days centered at day 001, 1990					Res. current: 0.017 M/S 190 deg.T			
		CURRENT ELLIPSE								
(Mooring #)		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
(Depth M)		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						2.435		32.789	
4	K1	.016	107	331	.001	A	.007	226	.020	133
	O1	.012	090	335	.001	C	.053	163	.044	185
	M2	.541	010	329	.022	C	.406	068	.064	063
(1000)	S2	.097	046	329	.009	C	.078	097	.068	148
	M4	.015	316	348	.004	A	.116	347	.063	026
	MS4	.003	358	339	.003	A	.021	005	.077	134
(5.7M)	MF	.002	014	358	.002	C	.151	343	.059	221
	N2	.100	325	327	.012	C	.021	271	.060	318

Table II continued

Tidal Analysis for Currents, Temperature and Salinity

Site	Constituent	29 days centered at day 346, 1989					Res. current: 0.037 M/S 237 deg.T			
		CURRENT ELLIPSE								
(Mooring #)		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
(Depth M)		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						4.560		32.579	
4	K1	.013	111	339	.001	C	.033	298	.021	130
	O1	.010	097	005	.003	C	.033	321	.036	334
	M2	.521	009	341	.007	C	.503	065	.049	084
(1000)	S2	.086	050	345	.007	C	.015	111	.073	172
	M4	.018	295	036	.001	C	.149	347	.063	302
	MS4	.006	002	035	.002	C	.036	255	.075	264
(19.7M)	MF	.003	008	097	.001	C	.511	238	.089	073
	N2	.101	324	349	.005	C	.156	006	.059	003

Site	Constituent	29 days centered at day 001, 1990					Res. current: 0.023 M/S 213 deg.T			
		CURRENT ELLIPSE								
(Mooring #)		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
(Depth M)		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						2.432		32.743	
4	K1	.014	106	344	.003	C	.013	210	.018	139
	O1	.010	091	356	.002	C	.063	165	.044	179
	M2	.516	010	344	.011	C	.384	071	.056	065
(1000)	S2	.090	045	350	.001	A	.049	092	.070	148
	M4	.017	188	118	.002	C	.106	005	.063	028
	MS4	.004	039	355	.001	C	.026	022	.076	132
(19.7M)	MF	.011	229	089	.001	C	.137	342	.052	217
	N2	.091	324	351	.011	C	.033	253	.057	313

Table II continued

Tidal Analysis for Currents, Temperature and Salinity

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 062,1990					Res. current: 0.028 M/S 207 deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						1.120		32.220	
4	K1	.016	104	332	.001	C	.034	073	.028	201
	O1	.012	095	328	.001	C	.003	108	.045	093
	M2	.540	009	327	.016	C	.128	065	.071	064
(1014)	S2	.097	051	329	.007	C	.028	018	.038	173
	M4	.030	319	355	.018	A	.041	004	.064	360
	MS4	.016	023	355	.010	A	.021	333	.077	148
(5M)	MF	.002	189	011	.001	A	.075	068	.049	359
	N2	.092	341	332	.006	C	.065	100	.056	196

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 091, 1990					Res. current: 0.030 M/S 197 deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						1.862		31.598	
4	K1	.013	280	126	.004	C	.046	112	.020	248
	O1	.012	268	133	.003	A	.012	271	.045	061
	M2	.528	009	324	.006	A	.089	247	.094	063
(1014)	S2	.084	049	321	.001	C	.013	197	.072	123
	M4	.022	172	115	.005	A	.027	212	.077	332
	MS4	.014	241	078	.004	A	.007	141	.105	089
(5M)	MF	.013	243	034	.001	C	.109	086	.234	124
	N2	.109	346	330	.011	C	.019	206	.067	162

Table II continued

Tidal Analysis for Currents, Temperature and Salinity

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 062, 1989					Res. current: 0.011 M/S 236 deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						1.222		32.122	
4	K1	.015	279	111	.005	C	.026	085	.031	205
	O1	.012	096	319	.001	A	.008	141	.044	095
	M2	.524	190	132	.002	A	.156	067	.087	064
(1014)	S2	.089	230	127	.005	C	.036	001	.036	176
	M4	.027	099	079	.002	C	.021	003	.055	357
	MS4	.003	147	074	.002	C	.015	307	.074	152
(19M)	MF	.010	222	035	.001	A	.045	070	.045	353
	N2	.084	162	126	.008	C	.083	114	.060	191

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 090, 1990					Res. current: 0.021 M/S 315 deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						1.851		31.608	
4	K1	.012	187	342	.002	C	.035	137	.033	217
	O1	.006	354	333	.003	A	.006	247	.046	071
	M2	.484	011	316	.017	C	.097	247	.148	055
(1014)	S2	.071	035	320	.005	A	.027	205	.092	086
	M4	.023	077	084	.014	C	.015	188	.065	273
	MS4	.014	100	054	.004	C	.011	101	.085	009
(19M)	MF	.032	130	342	.014	A	.096	063	.183	116
	N2	.123	165	133	.007	A	.007	219	.040	142

Table II continued

Tidal Analysis for Currents, Temperature and Salinity

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 151, 1989					Res. current: 0.030 M/S 136deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						6.530		30.571	
5	K1	.002	315	315	.001	A	.068	278	.013	192
	O1	.004	151	093	.001	C	.048	351	.040	193
	M2	.043	057	095	.036	C	.469	279	.226	102
(951)	S2	.012	100	115	.001	A	.116	319	.140	131
	M4	.020	038	097	.008	A	.151	122	.087	335
	MS4	.006	052	106	.001	C	.025	191	.076	284
(3M)	MF	.004	335	009	.001	A	.377	314	.112	244
	N2	.018	341	033	.003	C	.088	314	.032	135

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 201, 1989					Res. current: 0.008 M/S 142deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						10.587		31.776	
6	K1	.009	095	078	.001	C	.039	291	.019	003
	O1	.006	099	039	.002	A	.027	344	.035	081
	M2	.260	018	058	.045	C	.491	267	.064	108
(971)	S2	.035	041	057	.011	C	.058	279	.050	198
	M4	.061	284	010	.003	A	.024	034	.059	274
	MS4	.016	331	360	.001	C	.043	282	.072	320
(5M)	MF	.007	123	352	.000	A	.250	214	.073	178
	N2	.045	338	059	.009	C	.109	201	.058	051

Table II continued

Tidal Analysis for Currents, Temperature and Salinity

Site	Constituent	29 days centered at day 201, 1989					Res. current: 0.043 M/S 129 deg.T			
		CURRENT ELLIPSE								
(Mooring #)		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
(Depth M)		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						10.225		31.701	
6	K1	.009	078	109	.002	A	.039	320	.017	353
	O1	.012	096	009	.002	A	.031	296	.038	076
	M2	.236	007	059	.057	C	.320	252	.039	108
(971)	S2	.050	059	079	.011	C	.064	276	.048	196
	M4	.064	305	349	.020	A	.028	207	.053	276
	MS4	.012	348	005	.005	A	.018	251	.074	318
(15M)	MF	.016	111	007	.002	A	.310	232	.061	168
	N2	.050	350	086	.007	C	.084	202	.059	053

Site	Constituent	29 days centered at day 272, 1989					Res. current: 0.045 M/S 165 deg.T			
		CURRENT ELLIPSE								
(Mooring #)		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
(Depth M)		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						11.683			
6	K1	.010	089	033	.000	C	.079	287		
	O1	.004	097	019	.001	C	.049	067		
	M2	.173	017	052	.029	C	.207	270		
(984)	S2	.031	046	049	.003	C	.061	266		
	M4	.046	271	358	.003	A	.040	128		
	MS4	.015	290	005	.000	A	.029	101		
(5M)	MF	.011	228	015	.001	A	.344	107		
	N2	.047	356	048	.004	C	.101	207		

Table II continued

Tidal Analysis for Currents, Temperature and Salinity

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 272, 1989					Res. current: 0.054 M/S 139 deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						11.686			
6	K1	.014	086	052	.001	C	.066	289		
	O1	.007	088	032	.002	C	.043	078		
	M2	.238	010	063	.041	C	.161	259		
(984)	S2	.040	056	066	.008	C	.051	270		
	M4	.055	287	355	.020	A	.046	114		
	MS4	.019	322	007	.002	A	.036	108		
(15M)	MF	.027	244	008	.001	A	.368	102		
	N2	.049	338	058	.004	C	.067	206		

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 346, 1989					Res. current: 0.039 M/S 181 deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						4.093		32.338	
6	K1	.008	116	042	.000	A	.028	309	.023	139
	O1	.009	093	044	.000	C	.041	346	.034	350
	M2	.200	020	055	.024	C	.701	079	.066	078
(1001)	S2	.039	054	053	.003	C	.034	000	.063	197
	M4	.050	266	007	.016	A	.102	313	.065	338
	MS4	.009	298	010	.003	A	.030	284	.074	324
(5M)	MF	.010	026	013	.002	A	.600	239	.086	076
	N2	.044	329	049	.006	C	.140	038	.062	035

Table II continued

Tidal Analysis for Currents, Temperature and Salinity

Site	Constituent	29 days centered at day 010, 1990					Res. current: 0.041 M/S 181 deg.T			
		CURRENT ELLIPSE								
(Mooring #)		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
(Depth M)		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						2.030		32.488	
6	K1	.008	108	047	.000	C	.010	165	.019	155
	O1	.010	086	035	.001	C	.028	160	.041	315
	M2	.192	020	055	.027	C	.422	077	.051	097
(1001)	S2	.043	052	057	.002	C	.085	084	.055	141
	M4	.049	270	005	.020	A	.056	273	.063	309
	MS4	.016	311	024	.005	A	.036	299	.080	279
(5M)	MF	.015	109	017	.000	C	.017	098	.022	118
	N2	.037	337	063	.004	C	.037	098	.074	331

Site	Constituent	29 days centered at day 039, 1990					Res. current: 0.034 M/S 177 deg.T			
		CURRENT ELLIPSE								
(Mooring #)		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
(Depth M)		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						1.621		31.973	
6	K1	.011	118	048	.001	C	.023	032	.021	161
	O1	.009	067	045	.002	C	.016	211	.042	287
	M2	.185	017	054	.033	C	.239	083	.102	089
(1001)	S2	.042	050	050	.003	C	.034	051	.076	137
	M4	.043	270	359	.011	A	.040	317	.072	289
	MS4	.017	317	001	.003	A	.011	261	.071	232
(5M)	MF	.013	139	026	.002	A	.423	007	.052	182
	N2	.029	340	056	.002	C	.014	137	.040	295

Table II continued

Tidal Analysis for Currents, Temperature and Salinity

Site	Constituent	29 days centered at day 346, 1989					Res. current: 0.053 M/S 177 deg.T			
		CURRENT ELLIPSE								
(Mooring #)		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
(Depth M)		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						4.165		32.706	
6	K1	.008	119	060	.001	A	.032	329	.024	142
	O1	.008	097	023	.001	C	.046	329	.034	341
	M2	.242	017	058	.036	C	.635	079	.061	077
(1001)	S2	.035	057	063	.011	C	.027	055	.069	200
	M4	.067	281	358	.021	A	.112	294	.067	332
	MS4	.012	326	003	.004	A	.021	277	.079	322
(15M)	MF	.011	024	001	.005	A	.602	241	.088	073
	N2	.051	330	067	.013	C	.189	016	.073	024

Site	Constituent	29 days centered at day 010, 1990					Res. current: 0.060 M/S 162 deg.T			
		CURRENT ELLIPSE								
(Mooring #)		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
(Depth M)		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						2.146		32.826	
6	K1	.008	119	036	.001	A	.013	170	.019	152
	O1	.009	104	035	.002	C	.031	161	.042	316
	M2	.237	016	059	.033	C	.356	074	.039	098
(1001)	S2	.047	064	060	.008	C	.097	102	.058	143
	M4	.061	284	359	.028	A	.080	268	.072	309
	MS4	.017	334	353	.006	A	.017	308	.081	278
(15M)	MF	.019	129	024	.001	C	.054	116	.025	122
	N2	.040	330	066	.006	C	.046	108	.066	333

Table II continued

Tidal Analysis for Currents, Temperature and Salinity

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 039, 1990					Res. current: 0.041 M/S 146 deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						1.757		32.287	
6	K1	.015	106	047	.000	A	.017	043	.021	151
	O1	.009	063	045	.003	C	.011	203	.042	284
	M2	.226	011	059	.032	C	.167	079	.068	087
(1001)	S2	.050	051	060	.008	C	.038	047	.065	126
	M4	.054	276	001	.020	A	.049	297	.083	286
	MS4	.023	335	007	.004	A	.017	273	.068	235
(15M)	MF	.016	112	018	.004	A	.413	007	.014	147
	N2	.037	336	057	.001	C	.008	052	.055	302

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 064, 1990					Res. current: 0.051 M/S 162 deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						1.185		32.083	
6	K1	.013	126	032	.005	A	.025	077	.028	295
	O1	.009	069	045	.002	C	.011	230	.048	124
	M2	.228	015	060	.033	C	.132	078	.053	104
(1001)	S2	.042	056	060	.005	C	.039	032	.045	014
	M4	.056	282	004	.021	A	.025	304	.066	253
	MS4	.025	321	354	.001	A	.018	269	.071	091
(15M)	MF	.023	213	012	.003	C	.087	109	.022	021
	N2	.047	351	063	.001	C	.080	103	.046	302

Table II continued

Tidal Analysis for Currents, Temperature and Salinity

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 138, 1990					Res. current: 0.054 M/S 182 deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						5.402		30.591	
6	K1	.009	086	048	.003	A	.025	265	.007	296
	O1	.010	104	050	.003	A	.013	151	.027	330
	M2	.271	013	057	.027	C	.327	277	.210	092
(1017)	S2	.036	056	054	.010	C	.016	241	.031	158
	M4	.035	283	017	.003	A	.056	307	.040	206
	MS4	.011	300	349	.000	C	.007	064	.066	094
(5M)	MF	.009	218	067	.002	C	.290	281	.289	229
	N2	.066	339	059	.002	C	.057	222	.020	222

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 167, 1990					Res. current: 0.052 M/S 176 deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						7.834		30.895	
6	K1	.007	103	048	.001	C	.046	276	.011	281
	O1	.009	082	036	.001	A	.021	064	.042	292
	M2	.257	014	057	.039	C	.406	265	.084	079
(1017)	S2	.039	063	061	.010	C	.004	163	.041	140
	M4	.036	291	004	.000	C	.050	328	.065	206
	MS4	.011	318	342	.005	A	.017	126	.078	047
(5M)	MF	.006	181	083	.002	C	.373	295	.124	171
	N2	.058	336	060	.002	C	.166	237	.021	270

Table II continued

Tidal Analysis for Currents, Temperature and Salinity

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 186, 1990					Res. current: 0.048 M/S 175 deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						9.527		30.936	
6	K1	.009	092	051	.002	C	.043	267	.026	308
	O1	.008	089	016	.001	A	.042	334	.042	164
	M2	.244	014	058	.042	C	.444	265	.043	094
(1017)	S2	.035	043	053	.006	C	.082	277	.067	140
	M4	.042	270	002	.000	A	.060	023	.040	011
	MS4	.005	338	359	.000	A	.039	276	.064	308
(5M)	MF	.005	055	009	.002	A	.122	111	.169	087
	N2	.057	329	057	.005	C	.105	221	.034	235

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 138, 1990					Res. current: 0.055 M/S 092 deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						5.004		30.898	
6	K1	.010	122	060	.001	A	.042	312	.007	215
	O1	.012	062	050	.004	A	.009	165	.030	330
	M2	.205	355	050	.022	C	.246	277	.181	090
(1017)	S2	.031	065	063	.003	C	.047	275	.043	135
	M4	.035	290	322	.019	C	.050	274	.021	214
	MS4	.007	315	012	.002	C	.010	164	.071	089
(15M)	MF	.010	183	125	.001	A	.288	259	.133	248
	N2	.052	334	067	.004	C	.049	209	.021	246

Table II continued

Tidal Analysis for Currents, Temperature and Salinity

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 167, 1990					Res. current: 0.055 M/S 112deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						7.430		31.168	
6	K1	.008	096	066	.001	A	.044	295	.014	286
	O1	.012	093	032	.000	A	.017	346	.031	292
	M2	.220	359	056	.038	C	.327	255	.080	068
(1017)	S2	.054	067	075	.001	A	.048	159	.030	168
	M4	.043	306	335	.000	C	.045	249	.042	197
	MS4	.010	231	097	.004	A	.030	134	.076	042
(15M)	MF	.024	057	038	.003	C	.471	276	.072	145
	N2	.054	323	076	.005	C	.068	247	.038	223

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 186, 1990					Res. current: 0.058 M/S 113deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						9.143		30.940	
6	K1	.009	070	075	.000	C	.032	278	.010	297
	O1	.012	104	025	.003	C	.070	325	.050	163
	M2	.225	002	060	.046	C	.323	249	.027	088
(1017)	S2	.041	047	071	.007	C	.091	270	.070	136
	M4	.054	300	335	.009	A	.018	121	.053	014
	MS4	.006	345	317	.003	A	.025	307	.068	305
(15M)	MF	.014	080	360	.002	A	.082	123	.012	158
	N2	.062	328	070	.011	C	.082	206	.047	234

Table II continued

Tidal Analysis for Currents, Temperature and Salinity

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 201, 1989					Res. current: 0.037 M/S 259 deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						10.813		31.682	
7	K1	.004	290	043	.001	A	.025	241	.018	331
	O1	.011	105	027	.001	C	.033	339	.041	069
	M2	.261	355	047	.017	A	.666	258	.090	094
(972)	S2	.031	010	041	.007	C	.065	008	.061	180
	M4	.069	351	038	.008	C	.033	119	.056	218
	MS4	.022	023	356	.002	C	.038	219	.072	261
(5M)	MF	.013	129	012	.000	A	.254	217	.068	176
	N2	.034	299	039	.008	C	.086	250	.054	030

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 201, 1989					Res. current: 0.048 M/S 033 deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						10.104		31.760	
8	K1	.009	007	044	.001	C	.061	240	.022	299
	O1	.009	358	050	.003	A	.008	144	.038	025
	M2	.087	013	046	.001	A	.136	275	.035	078
(975)	S2	.016	026	039	.001	A	.061	216	.052	080
	M4	.016	229	065	.001	A	.030	169	.056	042
	MS4	.002	274	126	.001	C	.013	111	.076	082
(5M)	MF	.027	348	055	.002	C	.279	205	.060	166
	N2	.024	305	047	.000	A	.013	208	.053	309

Table II continued

Tidal Analysis for Currents, Temperature and Salinity

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 272, 1989					Res. current: 0.087 M/S 181 deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						11.575		32.533	
9	K1	.015	131	349	.002	A	.073	279	.037	106
	O1	.012	111	355	.004	A	.036	080	.038	095
	M2	.284	019	350	.011	C	.133	255	.033	023
(985)	S2	.052	061	351	.004	A	.027	273	.037	258
	M4	.025	313	357	.011	A	.032	113	.057	102
	MS4	.009	354	351	.003	A	.050	095	.073	084
(4M)	MF	.014	263	358	.001	A	.359	101	.147	274
	N2	.078	002	354	.003	A	.020	233	.047	309

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 272, 1989					Res. current: 0.043 M/S 244 deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						11.355		32.541	
9	K1	.007	120	347	.002	A	.042	255	.036	098
	O1	.010	155	335	.001	A	.041	063	.036	102
	M2	.241	015	347	.001	A	.171	266	.042	034
(985)	S2	.041	075	340	.004	A	.061	329	.039	238
	M4	.034	288	019	.026	A	.157	100	.022	113
	MS4	.018	313	029	.012	A	.100	116	.065	071
(20.5M)	MF	.009	166	090	.007	A	.328	100	.139	273
	N2	.040	026	342	.006	C	.092	333	.023	283

Table II continued

Tidal Analysis for Currents, Temperature and Salinity

Site (Mooring #) (Depth M)	Constituent	29 days centered at day 305, 1989					Res. current: 0.088 M/S 185deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						10.095		32.925	
9	K1	.017	133	343	.001	A	.014	290	.029	133
	O1	.010	104	007	.002	A	.024	301	.037	319
	M2	.317	020	352	.010	C	.075	066	.067	076
(998)	S2	.053	057	353	.003	C	.020	222	.031	238
	M4	.033	305	360	.011	A	.013	277	.049	260
	MS4	.011	329	347	.003	A	.026	306	.079	306
(4M)	MF	.017	291	015	.001	C	.085	189	.038	044
	N2	.077	343	352	.000	C	.039	059	.055	105

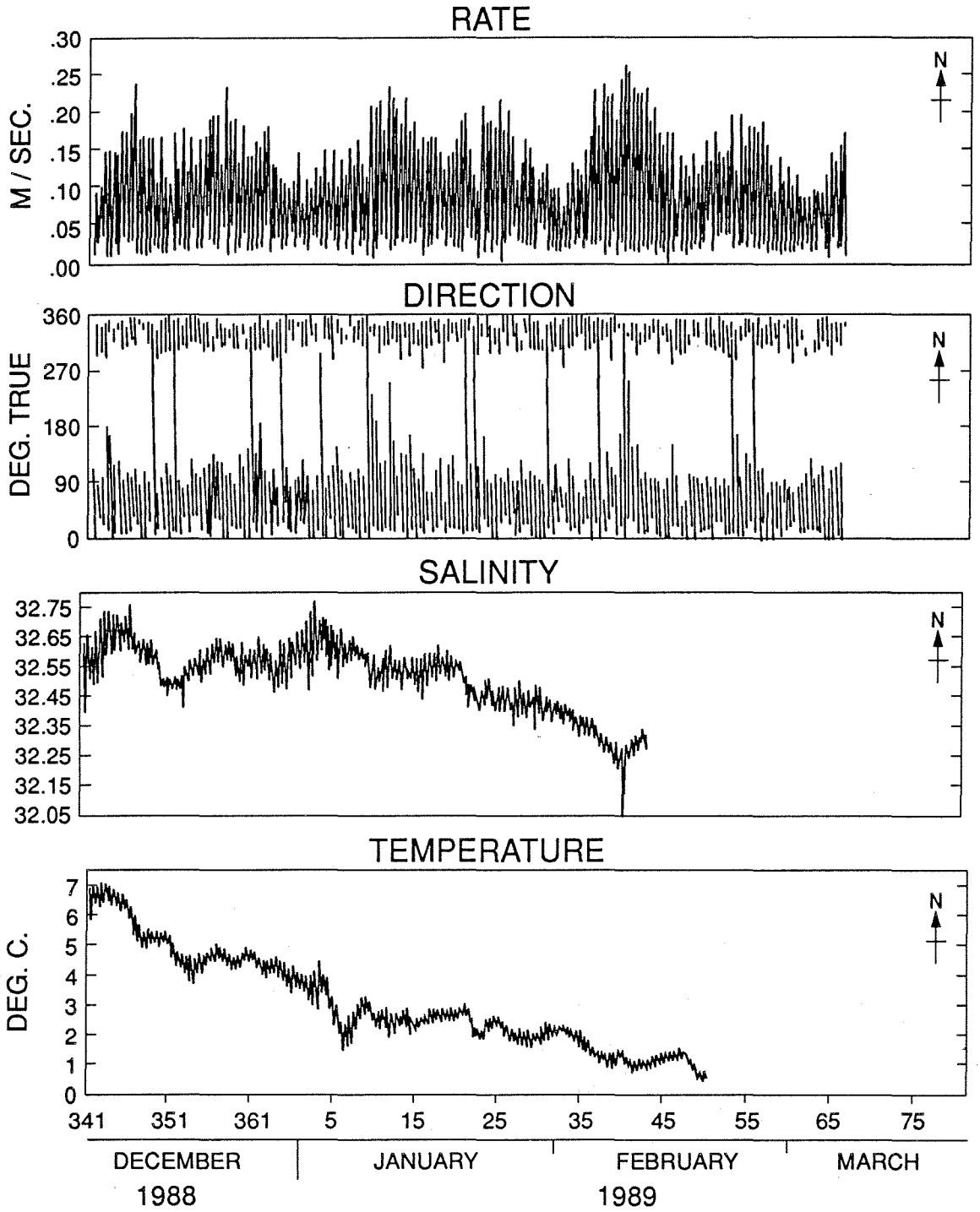
Site (Mooring #) (Depth M)	Constituent	29 days centered at day 305, 1989					Res. current: 0.057 M/S 227deg.T			
		CURRENT ELLIPSE								
		Major Axis			Minor Axis		TEMPERATURE		SALINITY	
		Ampl. (M/S)	Phase Lag(deg.)	Orient. (deg.T)	Ampl. (M/S)	Rotation Sense	Ampl. (deg.C)	Phase Lag(deg.)	Ampl.	Phase Lag(deg.)
	Z0						10.180		32.457	
9	K1	.012	137	339	.005	A	.011	296	.026	133
	O1	.008	127	316	.001	A	.024	308	.040	321
	M2	.250	014	353	.002	A	.078	053	.066	060
(998)	S2	.037	059	341	.005	A	.020	228	.033	247
	M4	.034	010	319	.016	A	.029	287	.060	260
	MS4	.017	025	319	.008	A	.029	302	.082	304
(20.5M)	MF	.007	313	341	.000	A	.084	192	.029	061
	N2	.062	338	354	.008	A	.031	040	.047	100

APPENDIX I

Hourly values of current speed and direction, salinity and temperature, and progressive vector and stick plots of residual currents.

Time is reported as days of the year.

Diagrams are grouped by mooring site.



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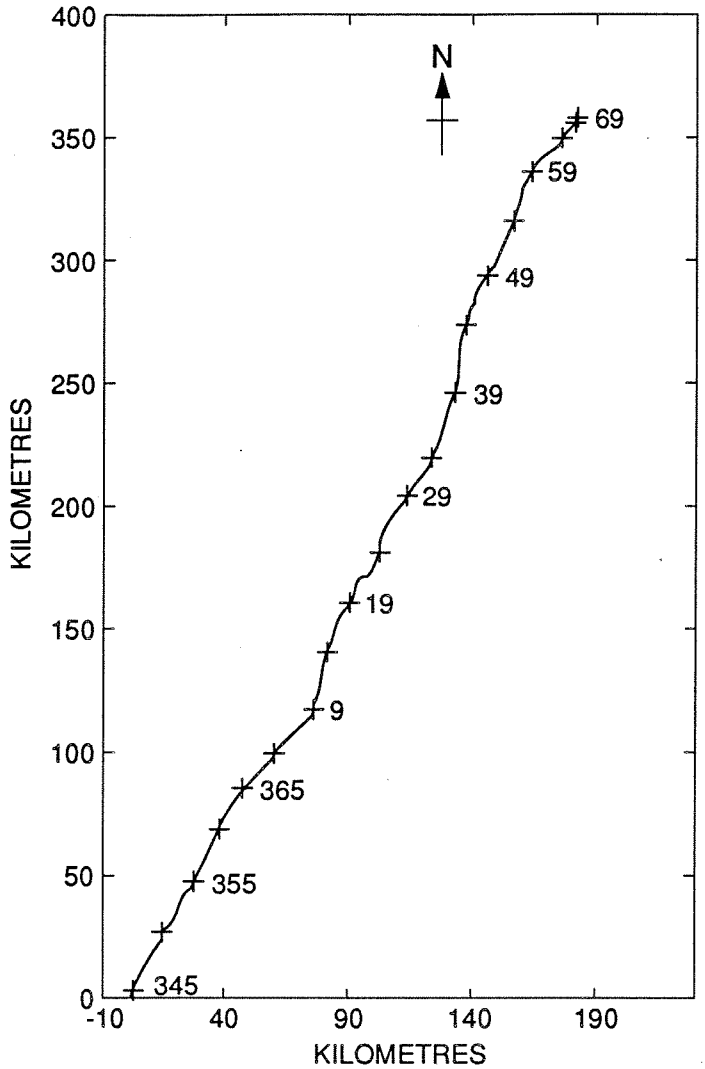

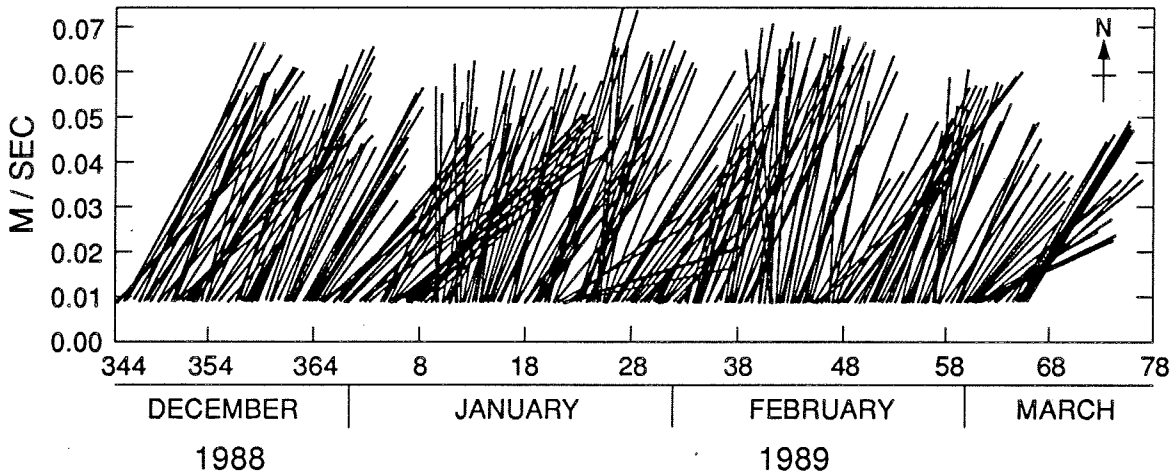

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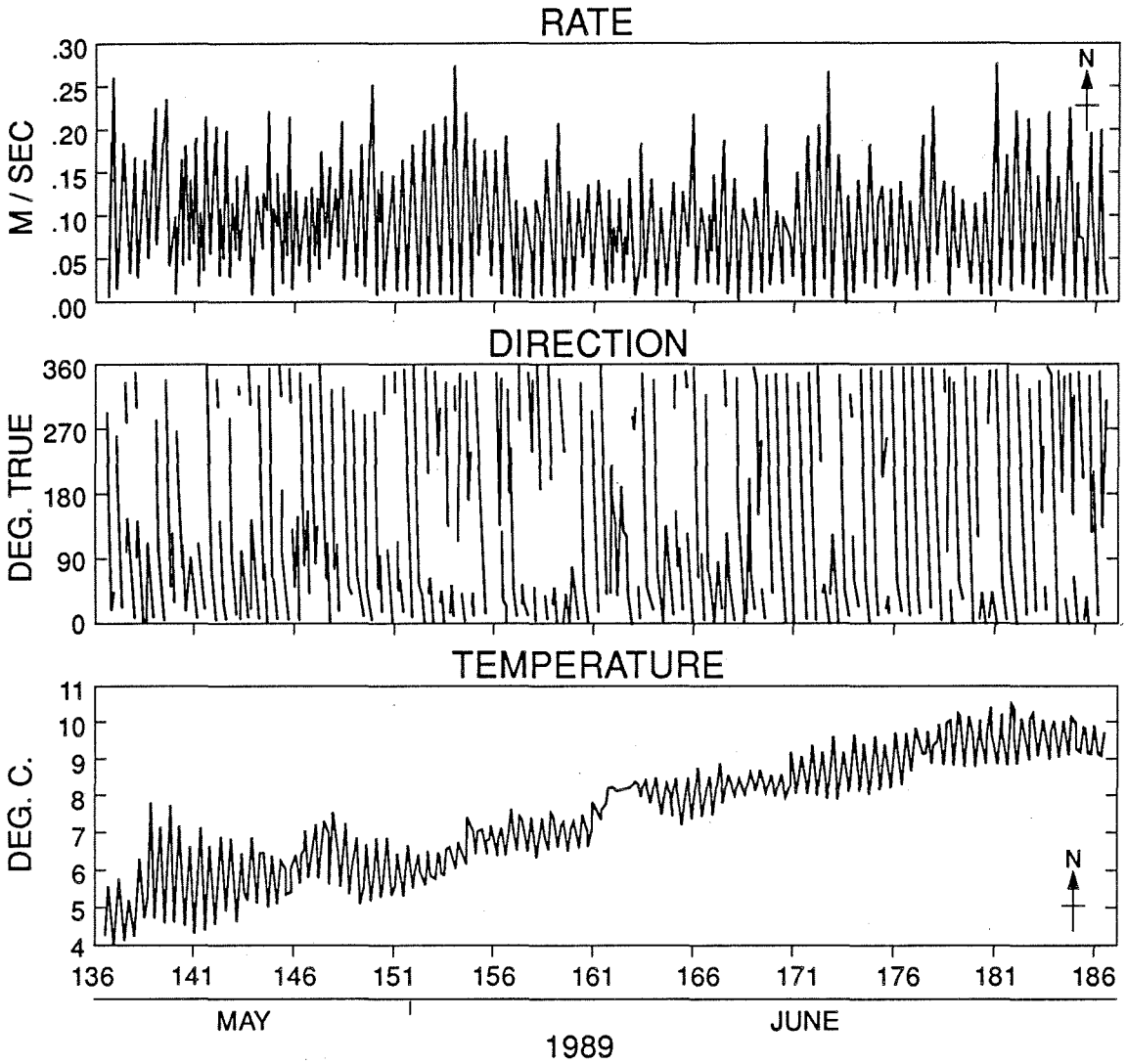

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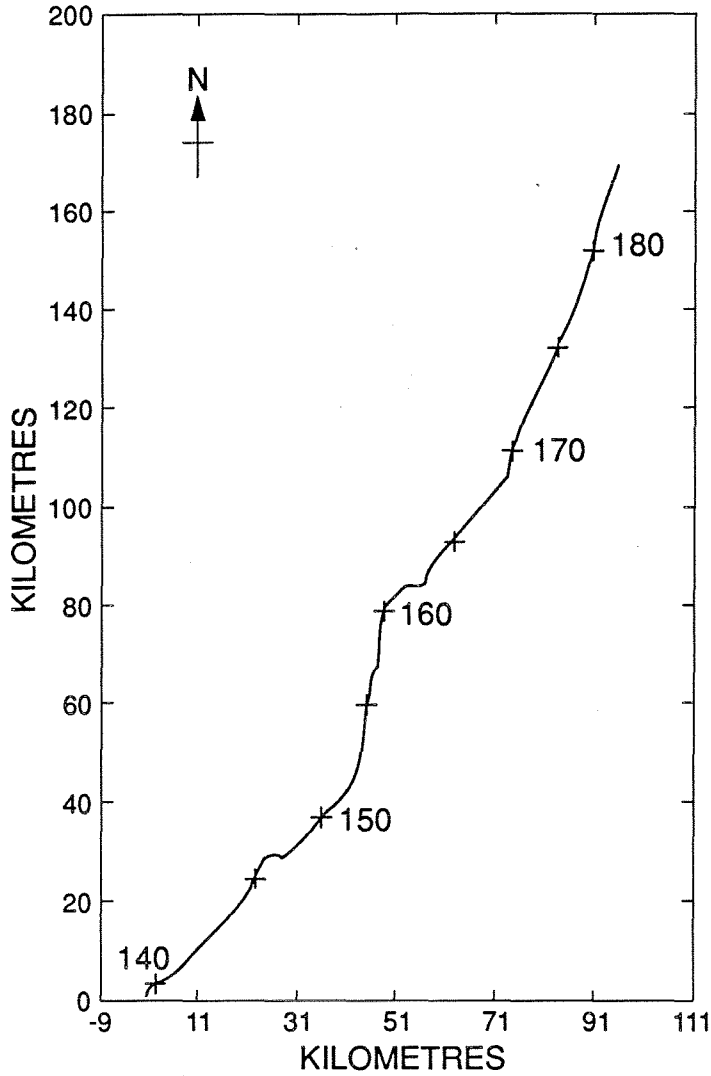

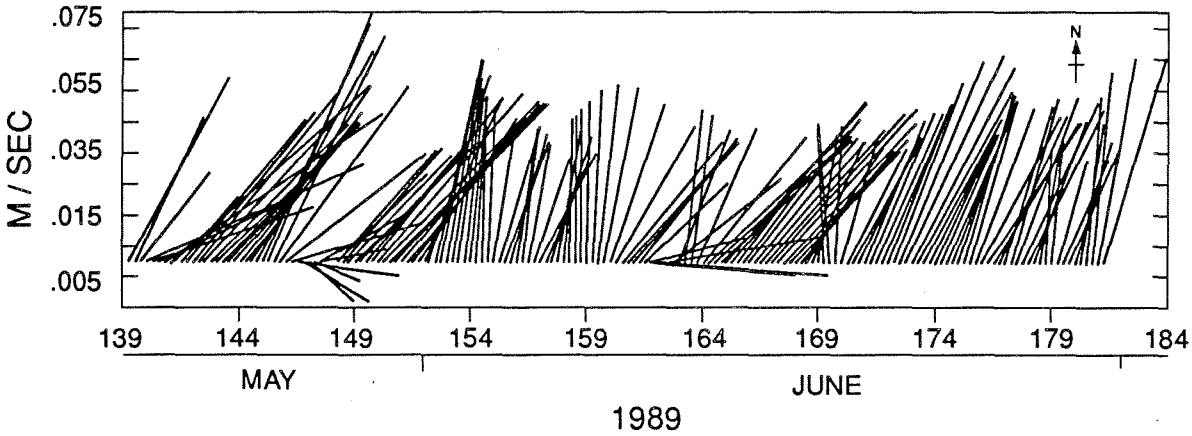

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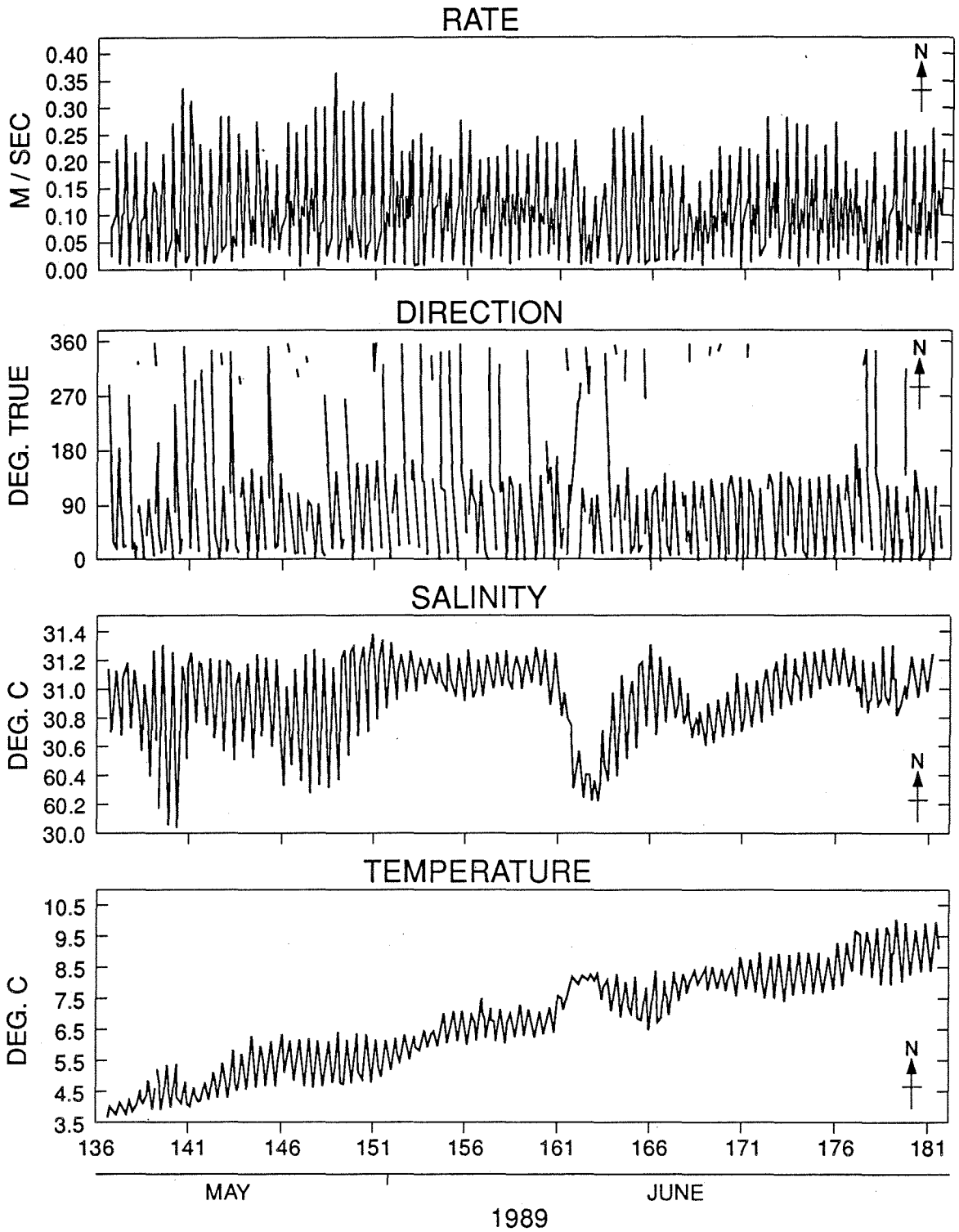

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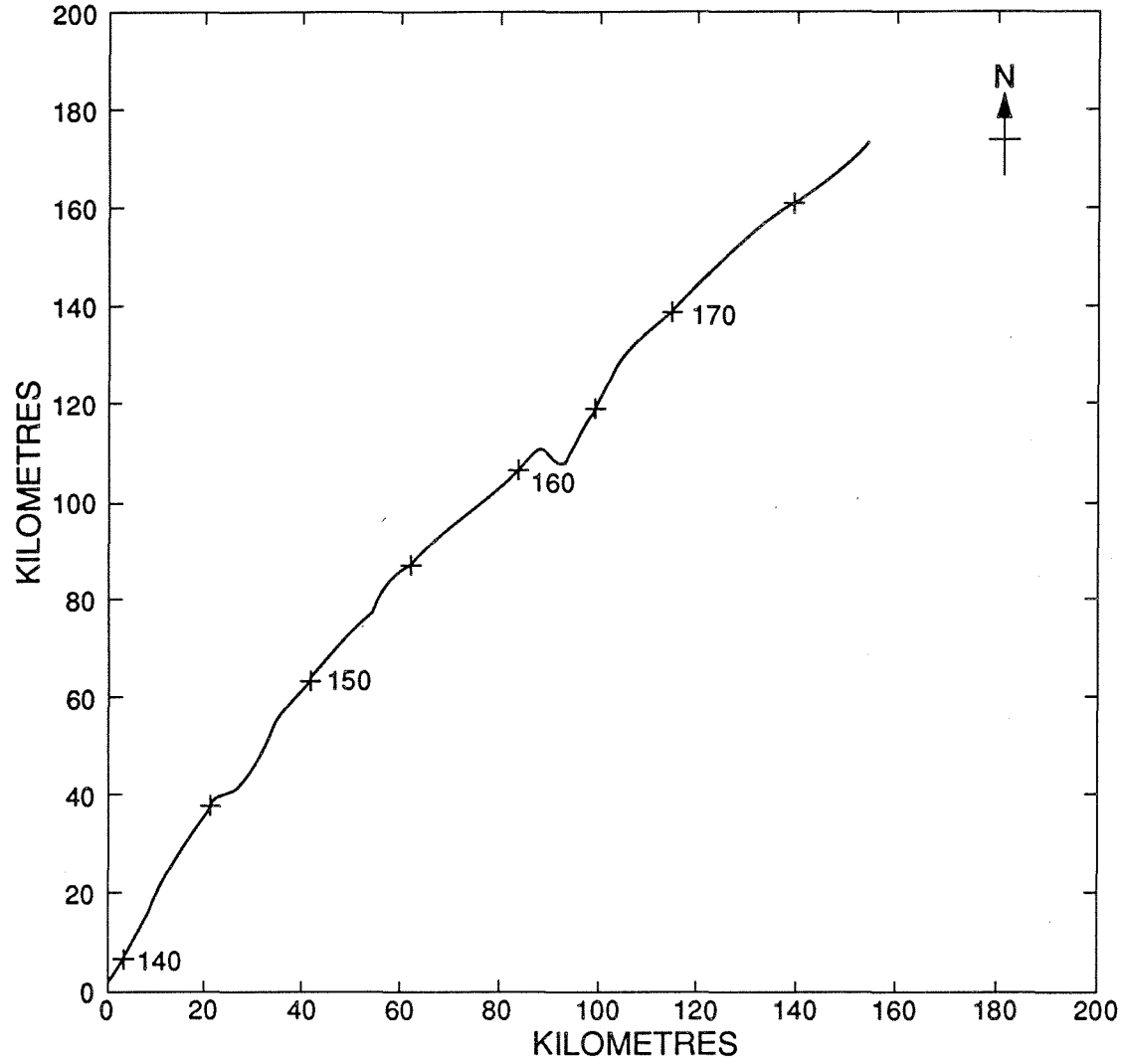

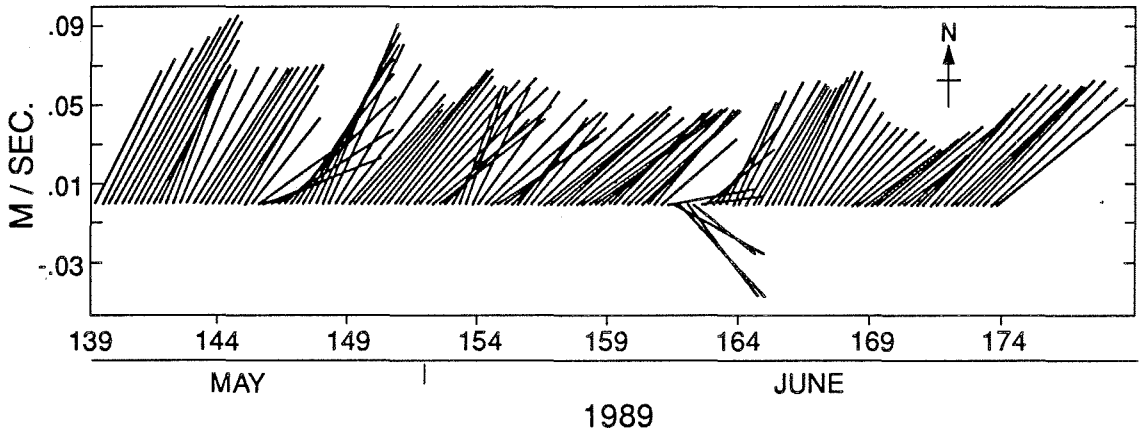

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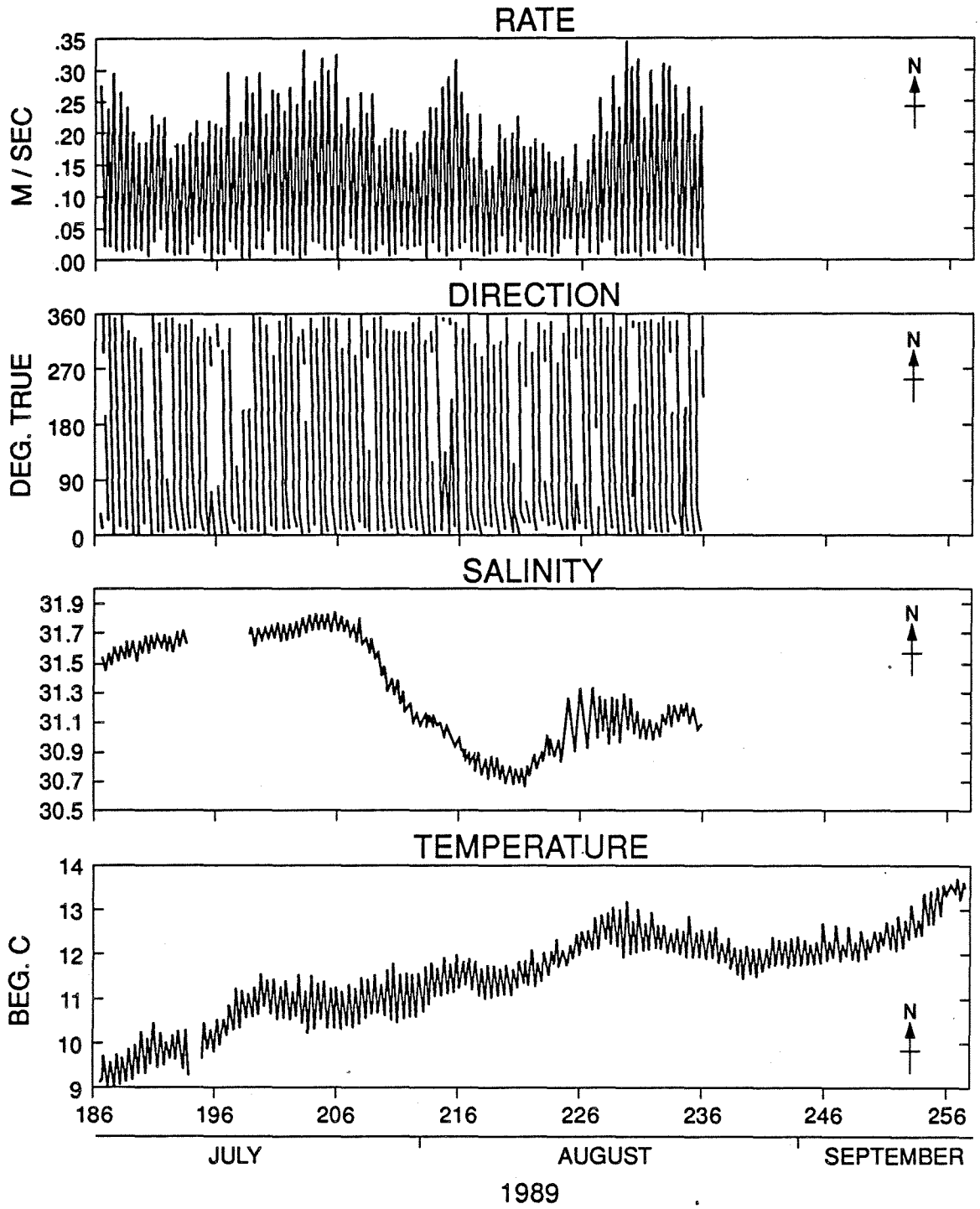

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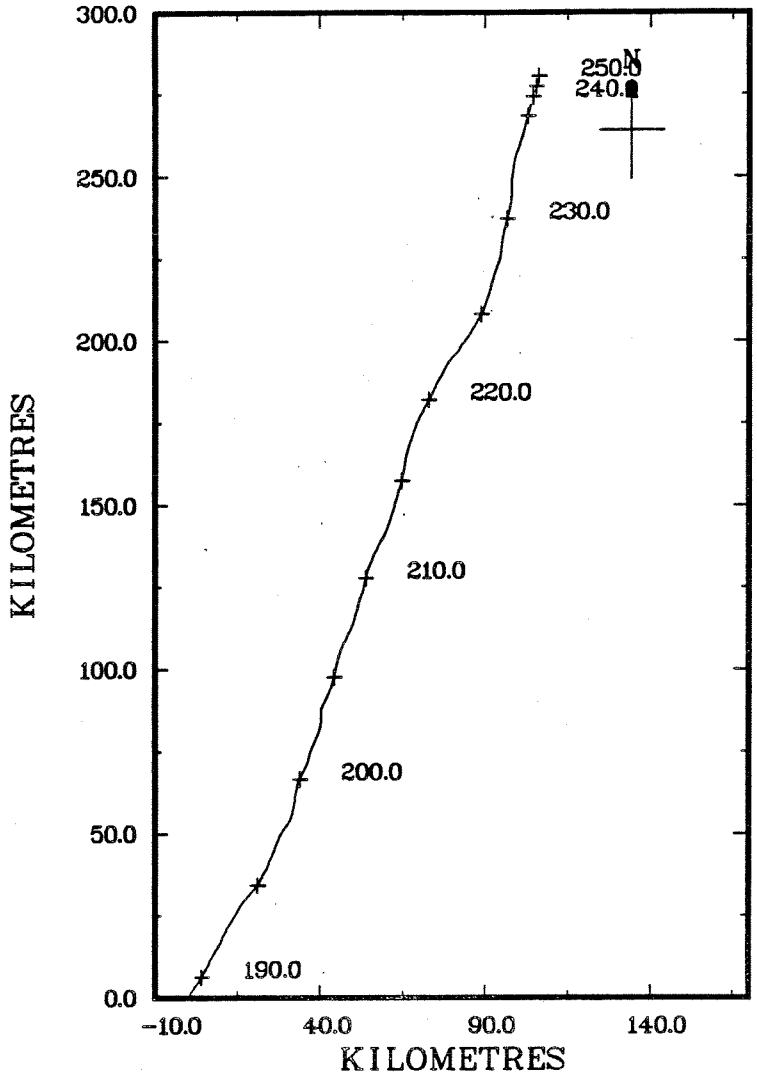

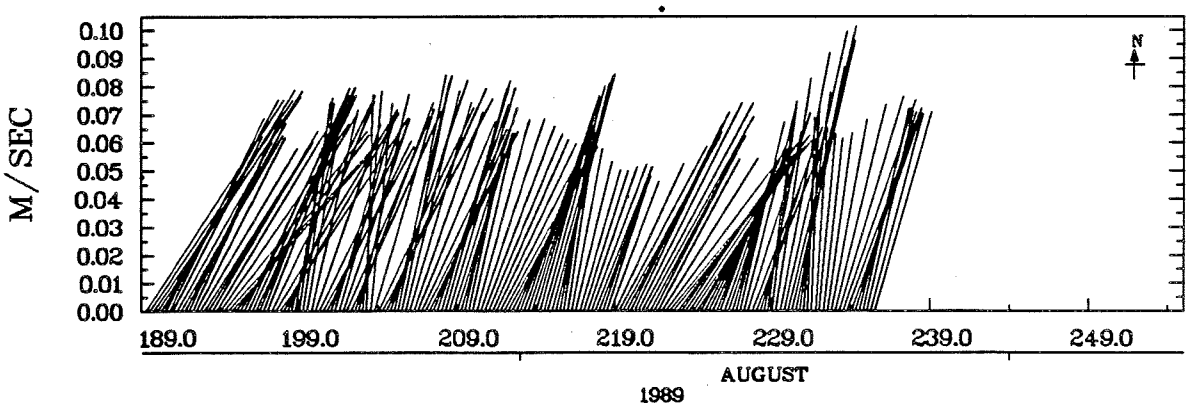

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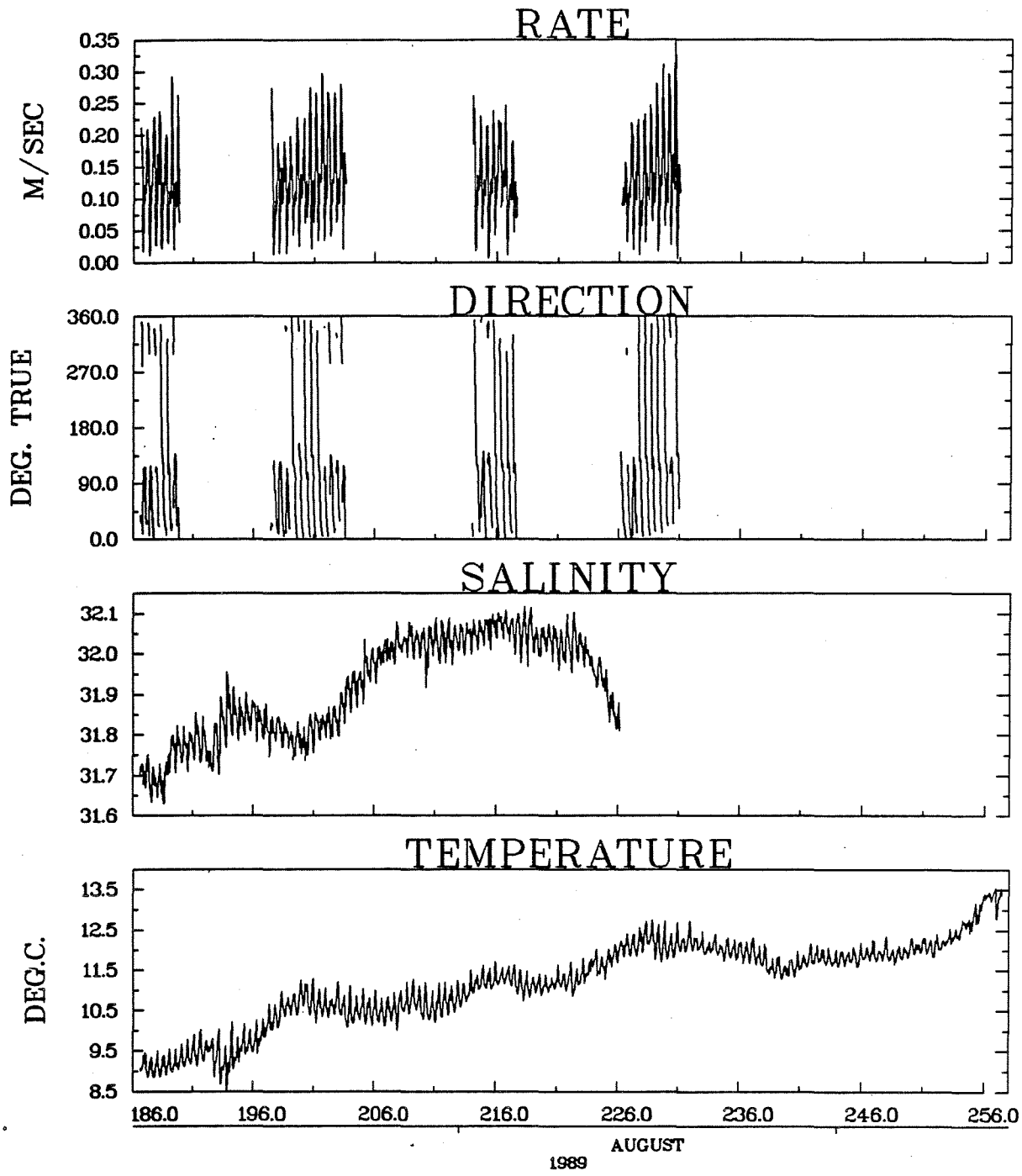

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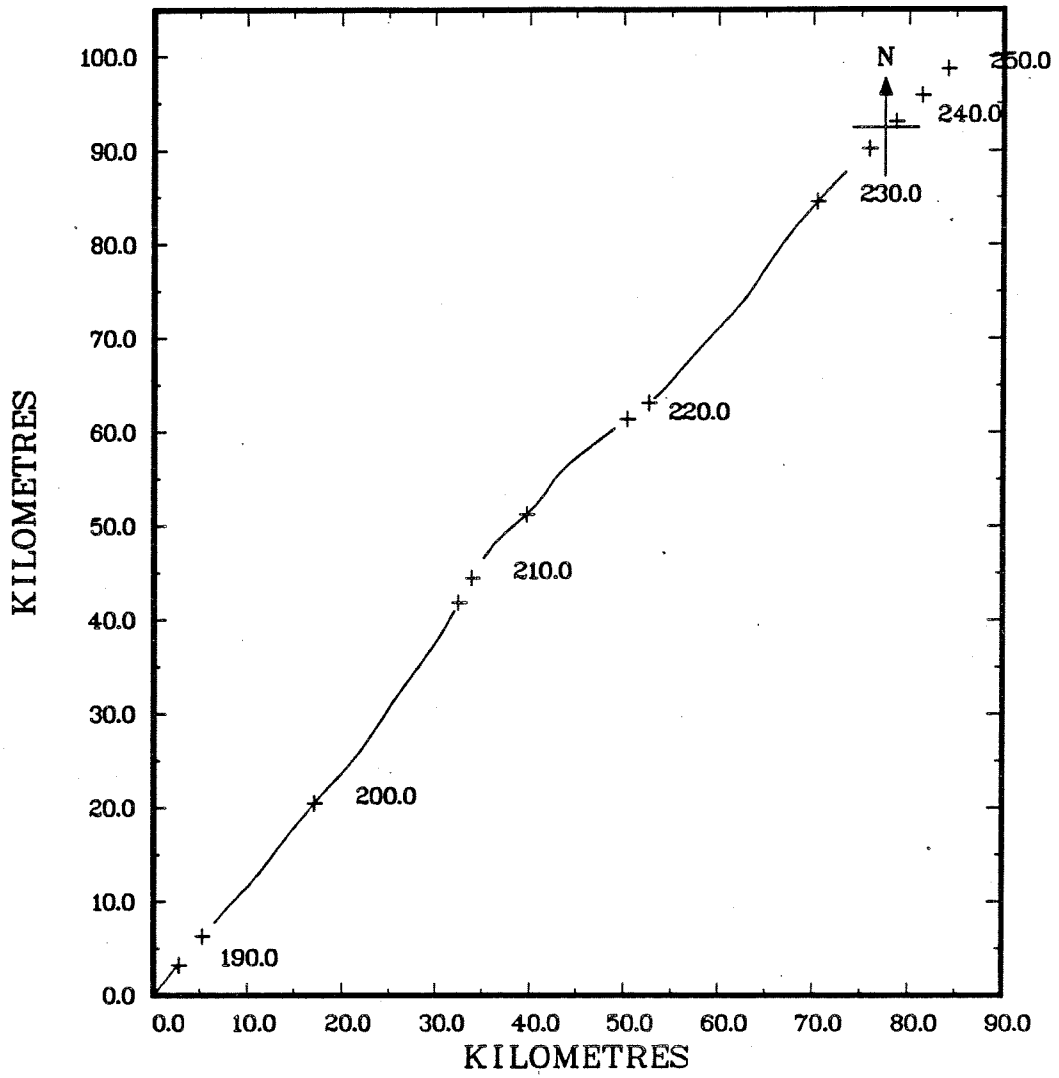

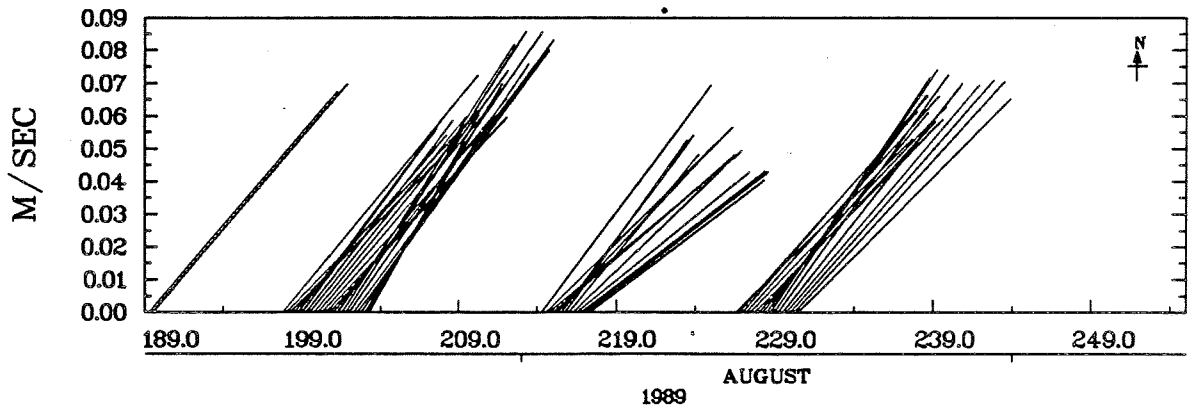

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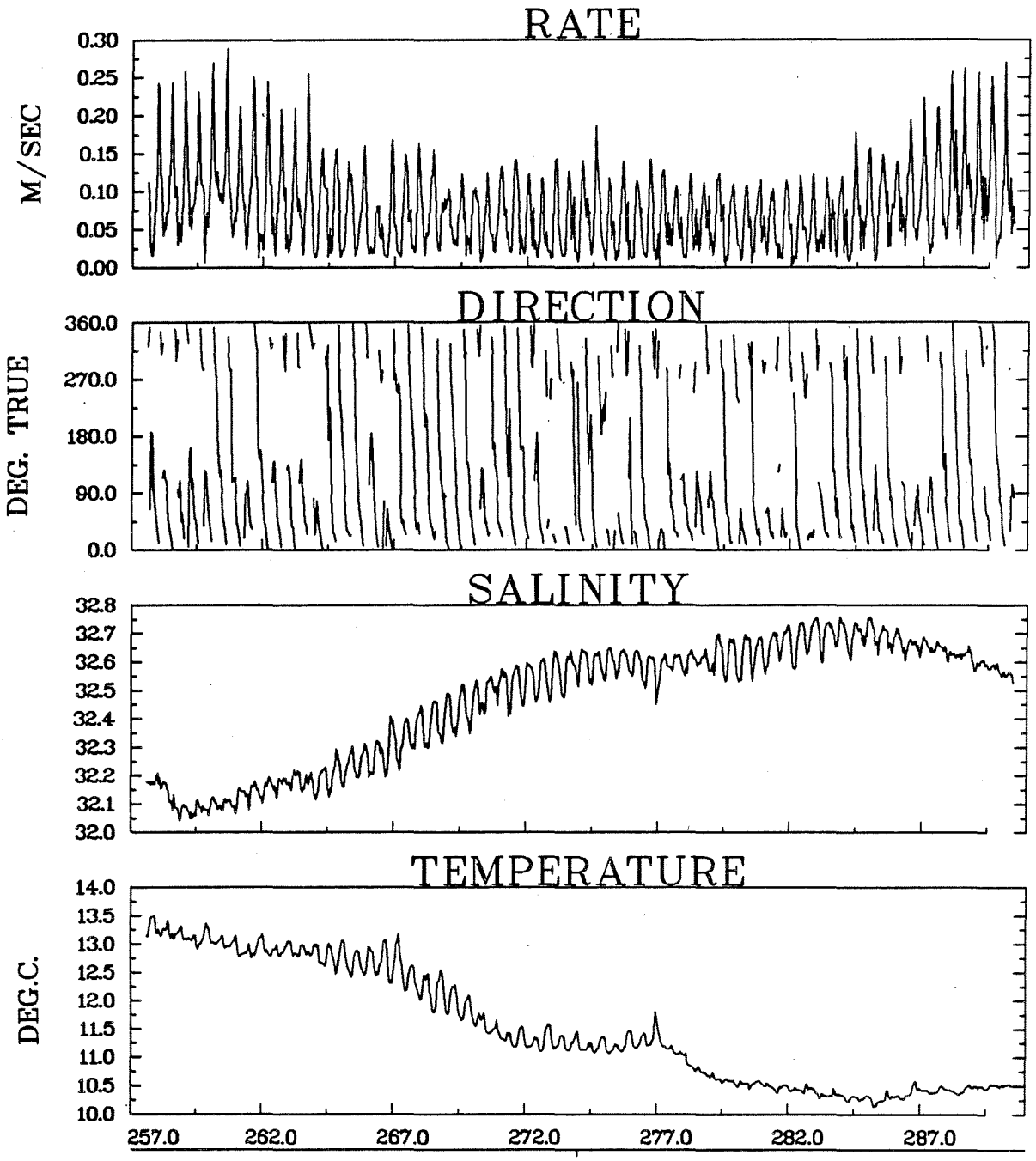

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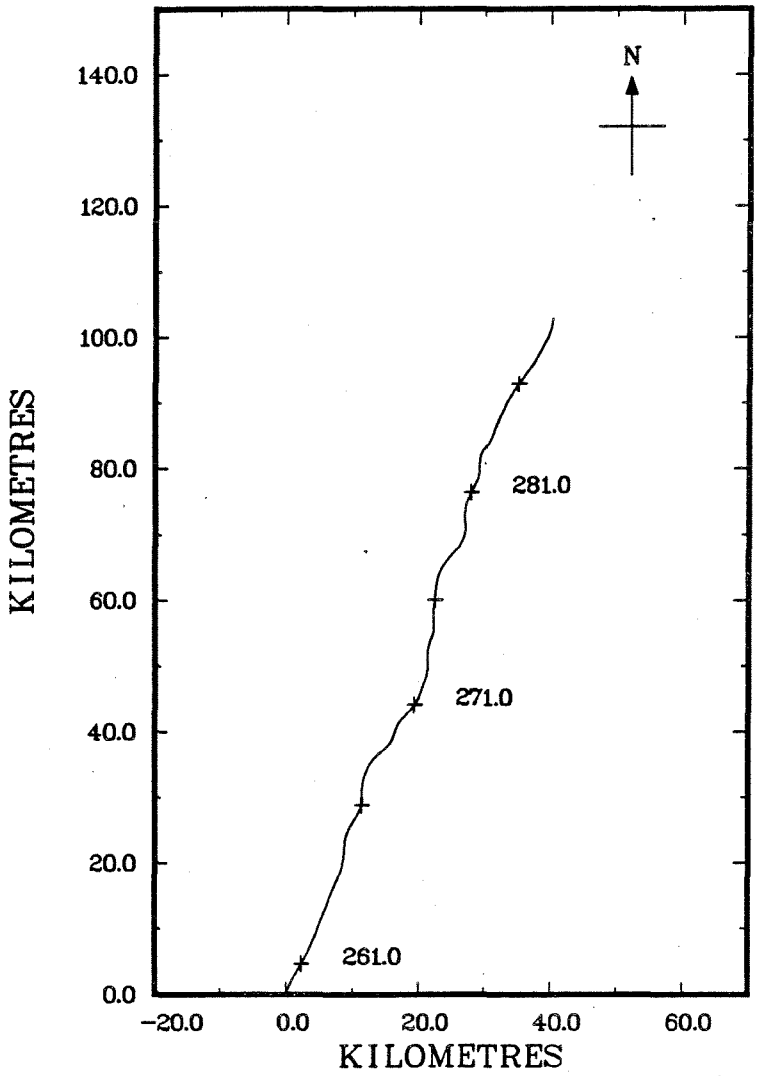

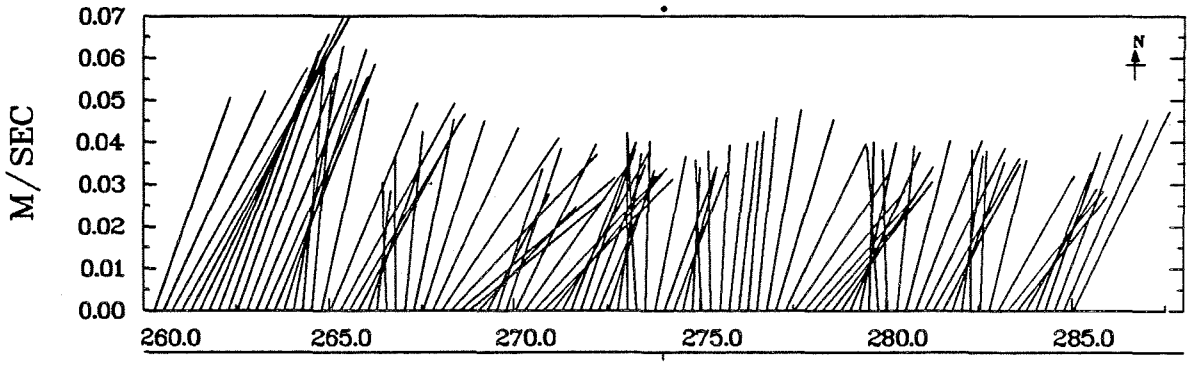

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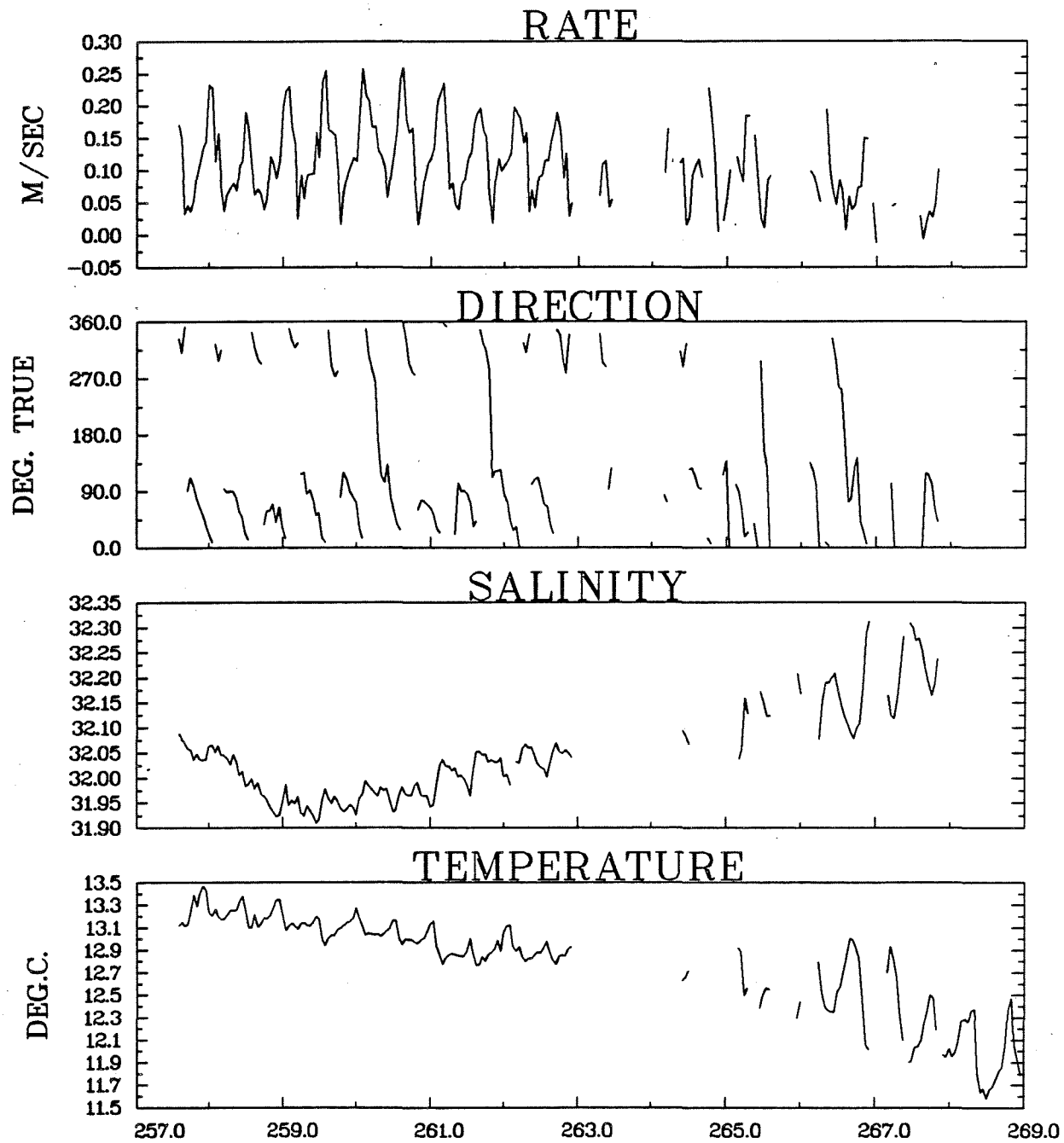

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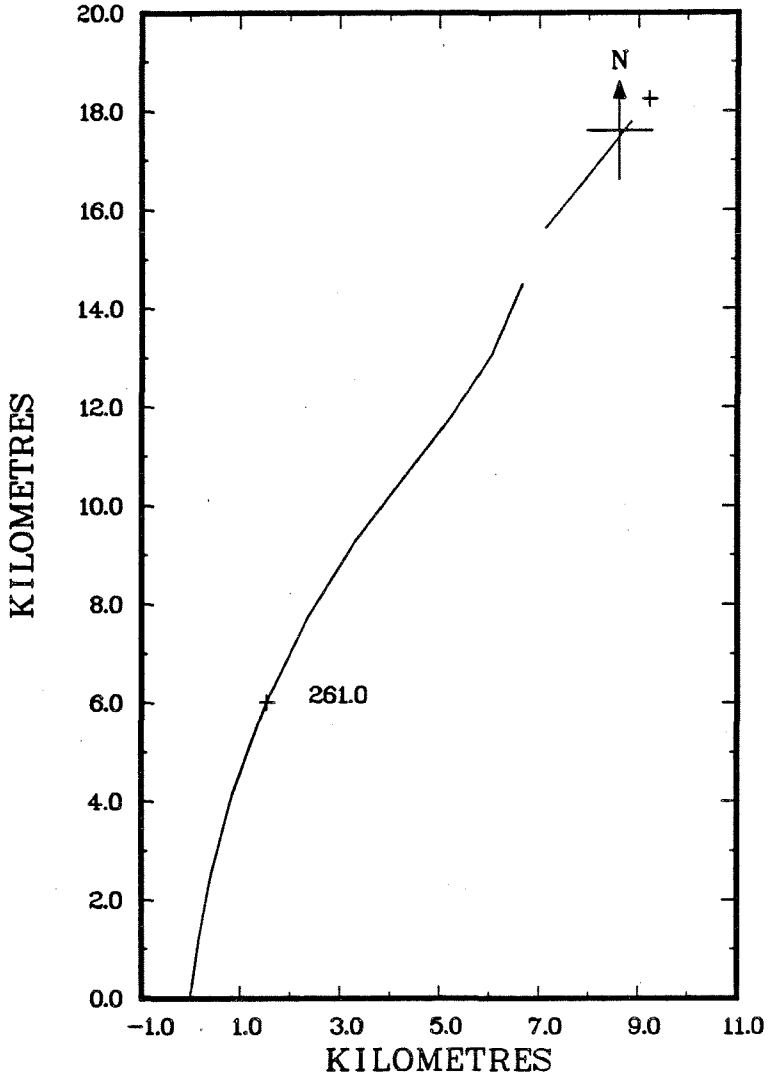

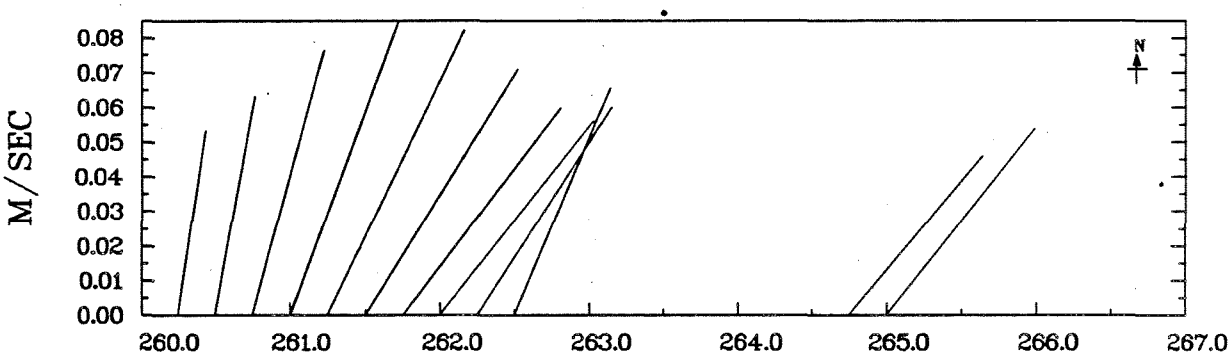

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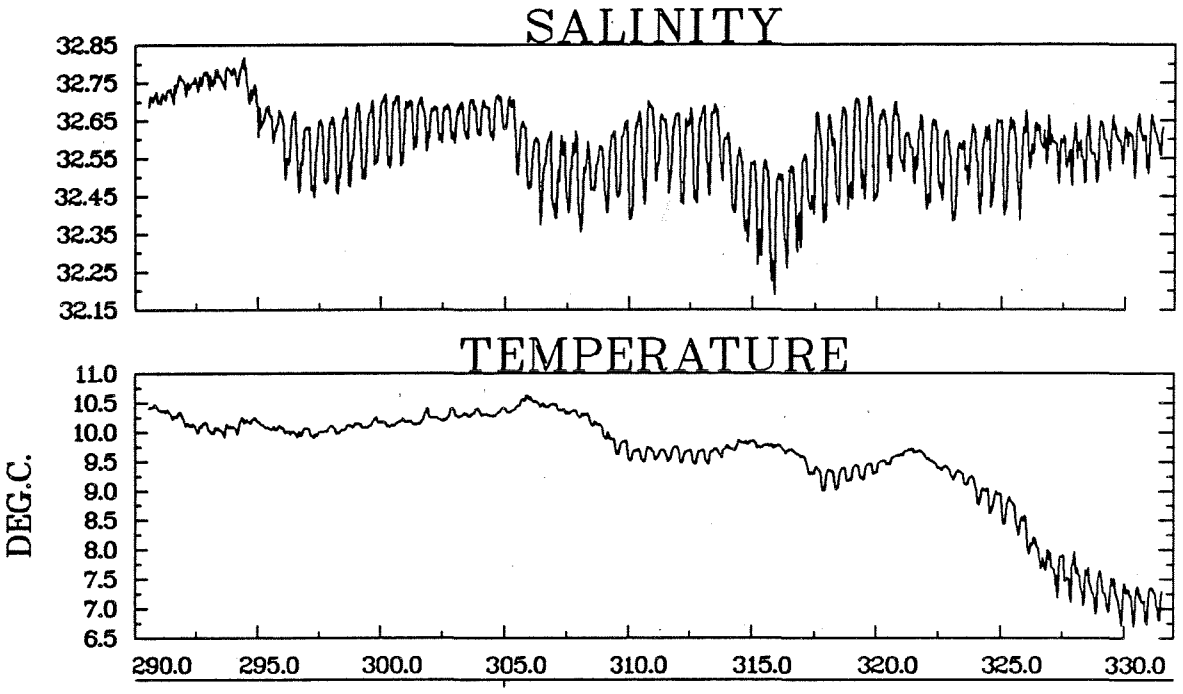

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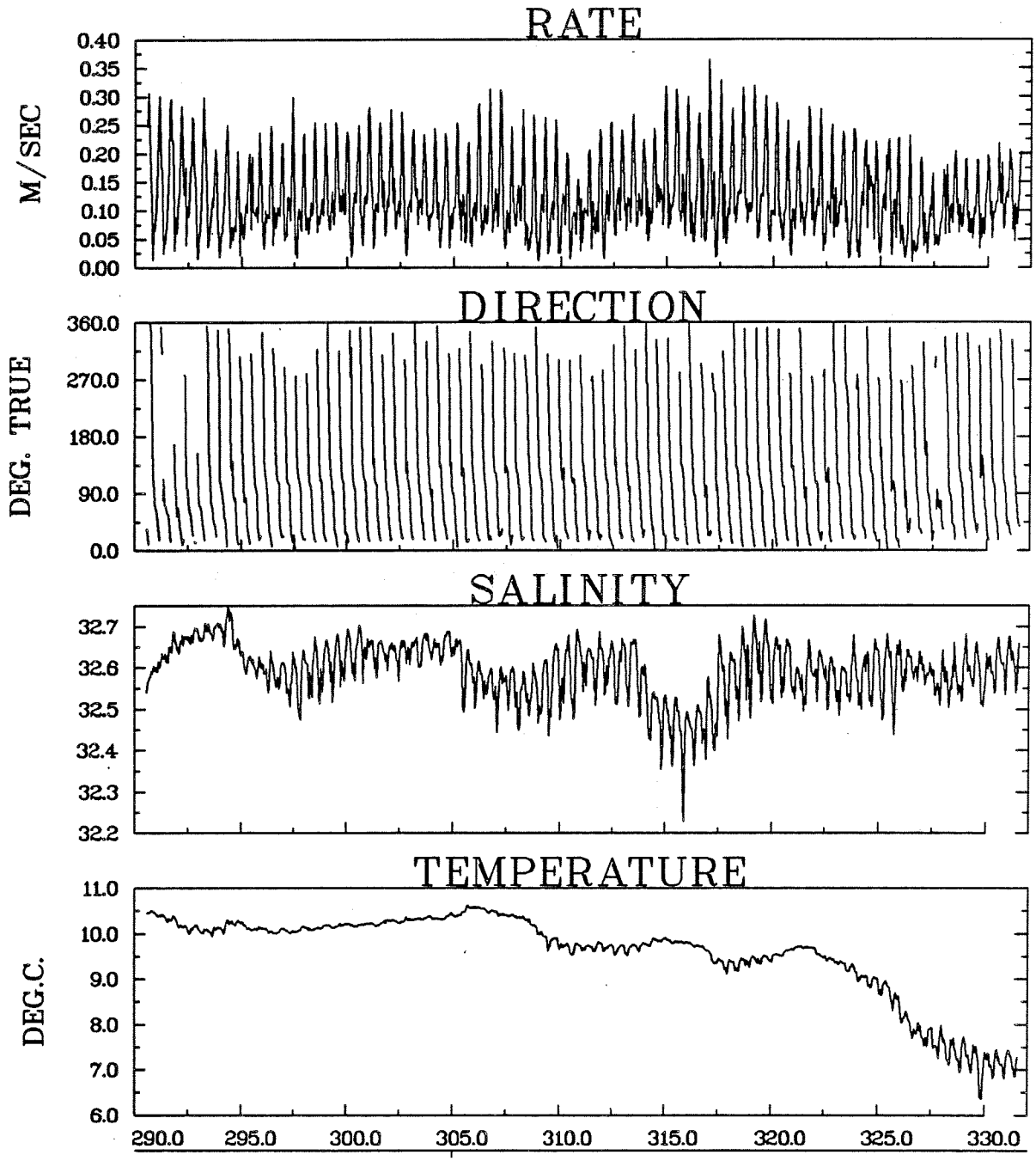

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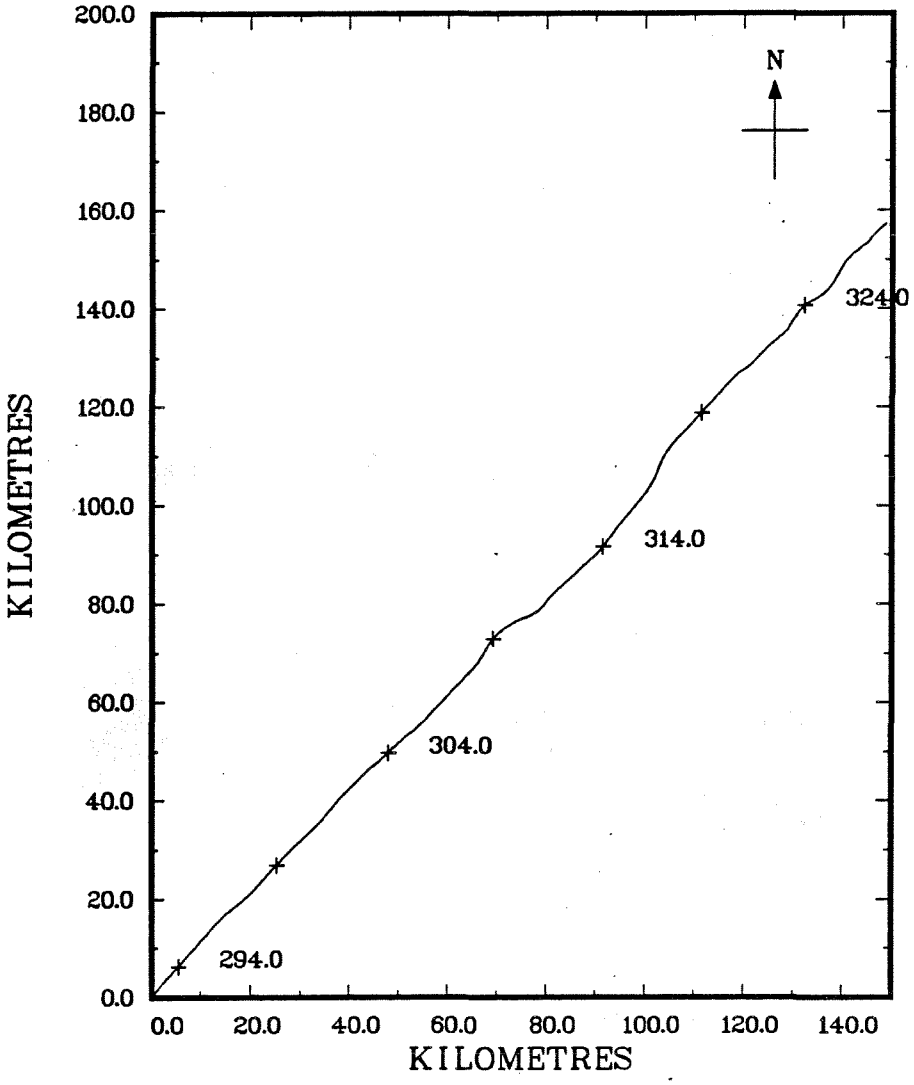

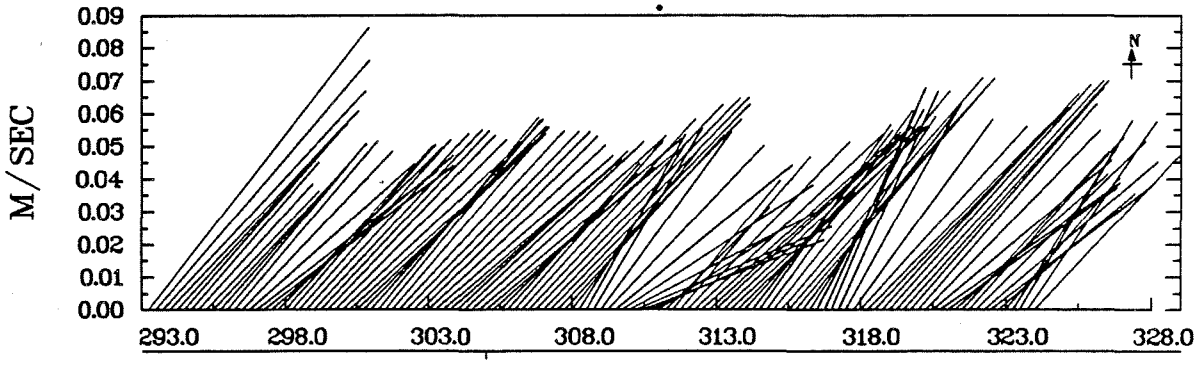

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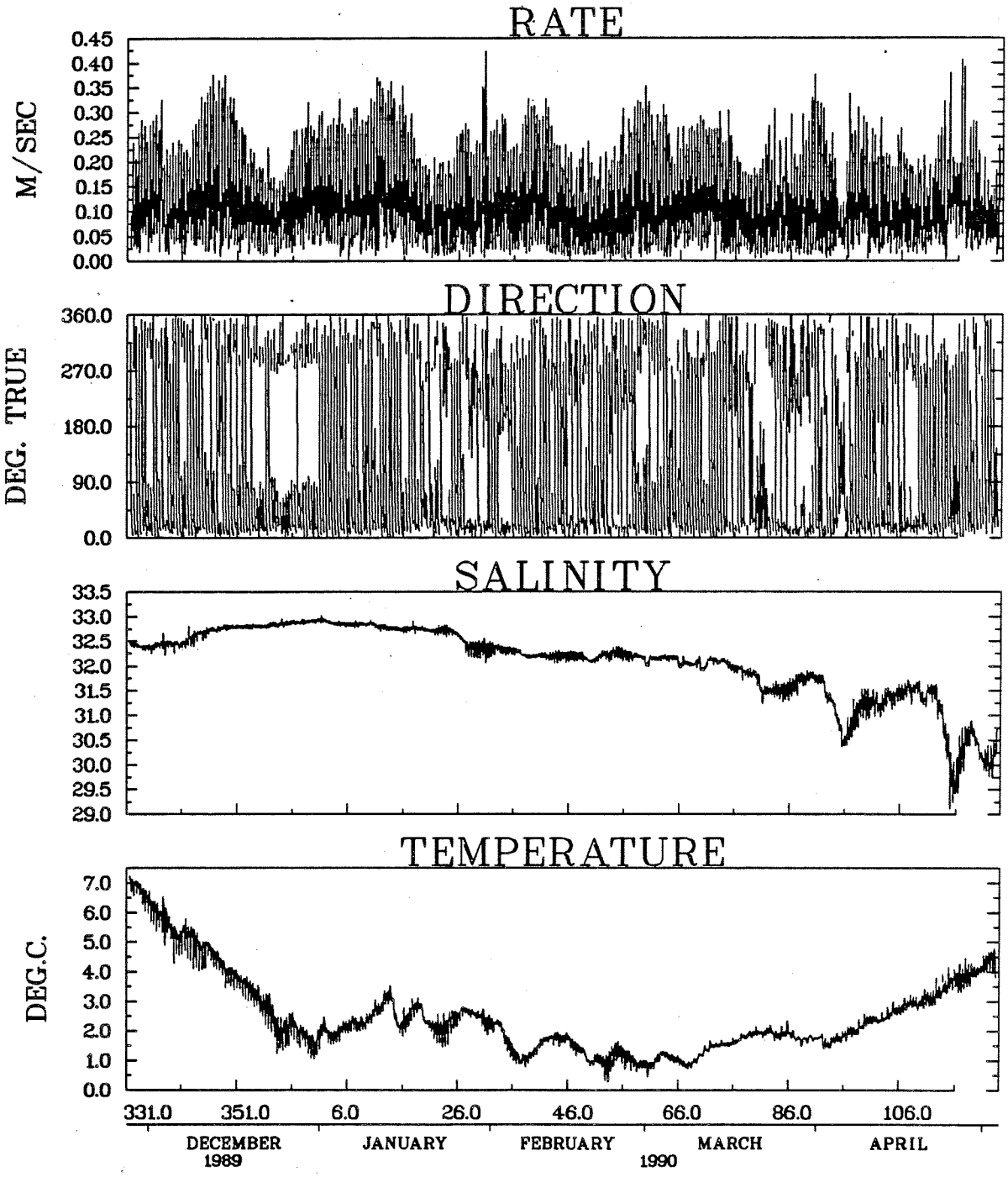

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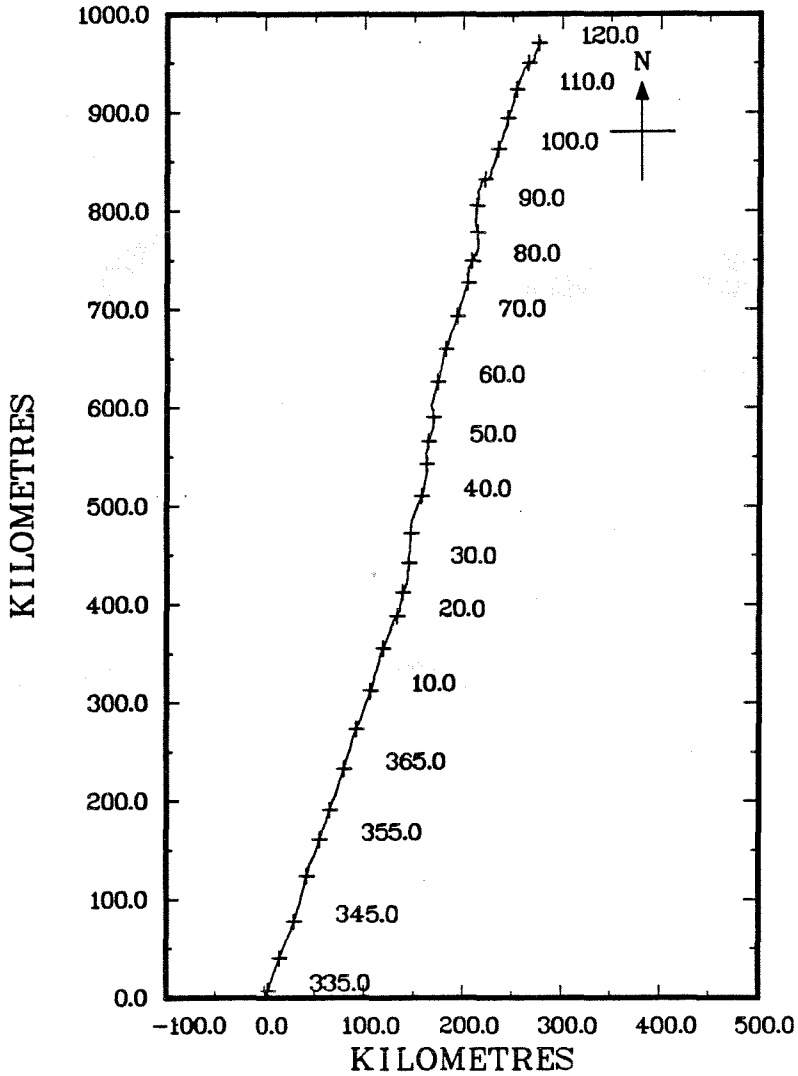
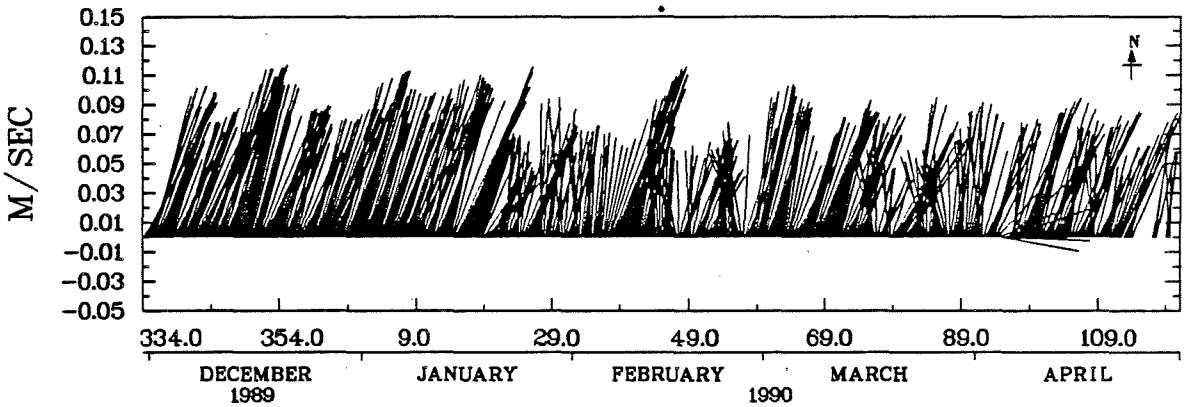
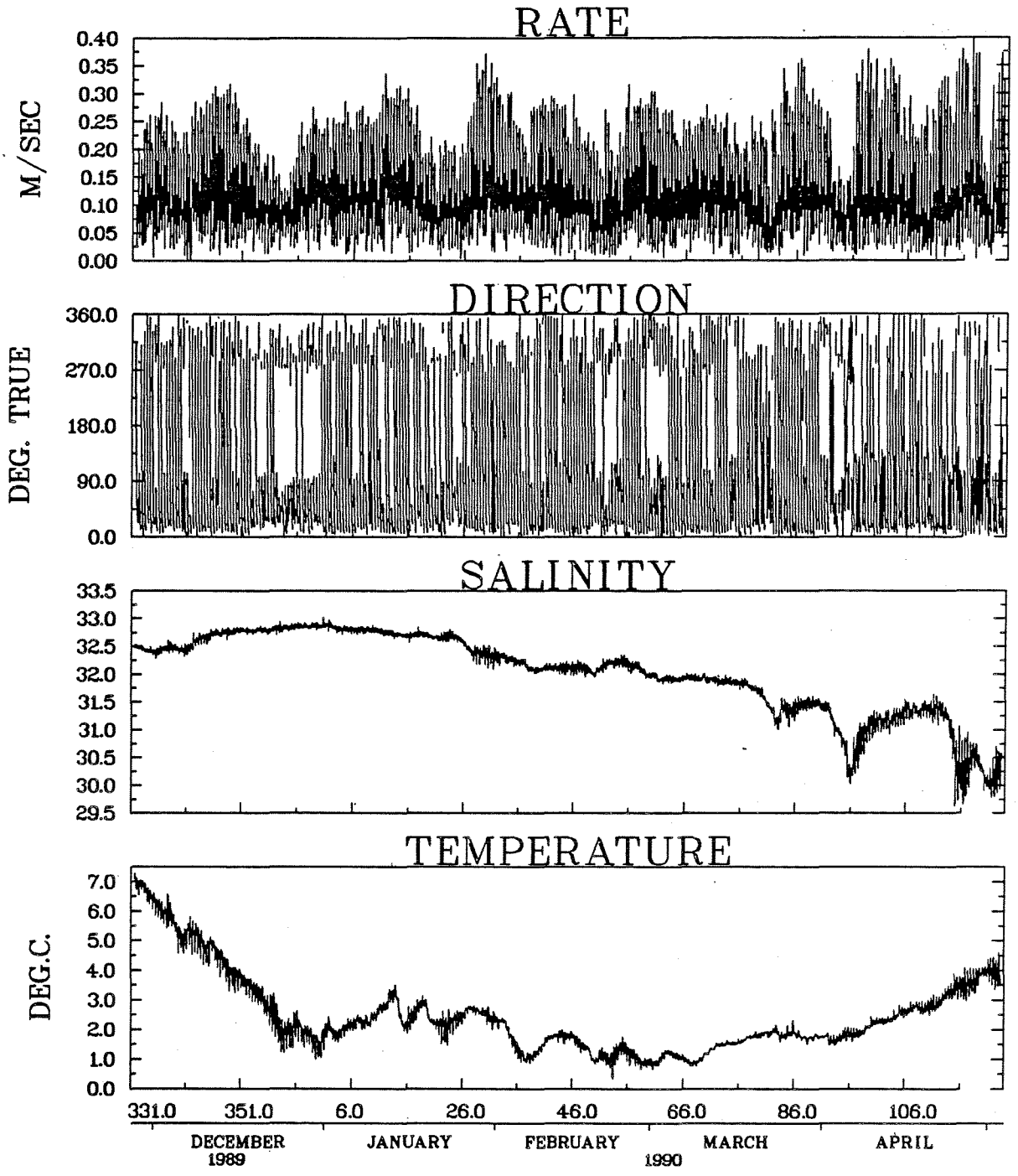




L'ETANG INLET SITE 1 5 M.



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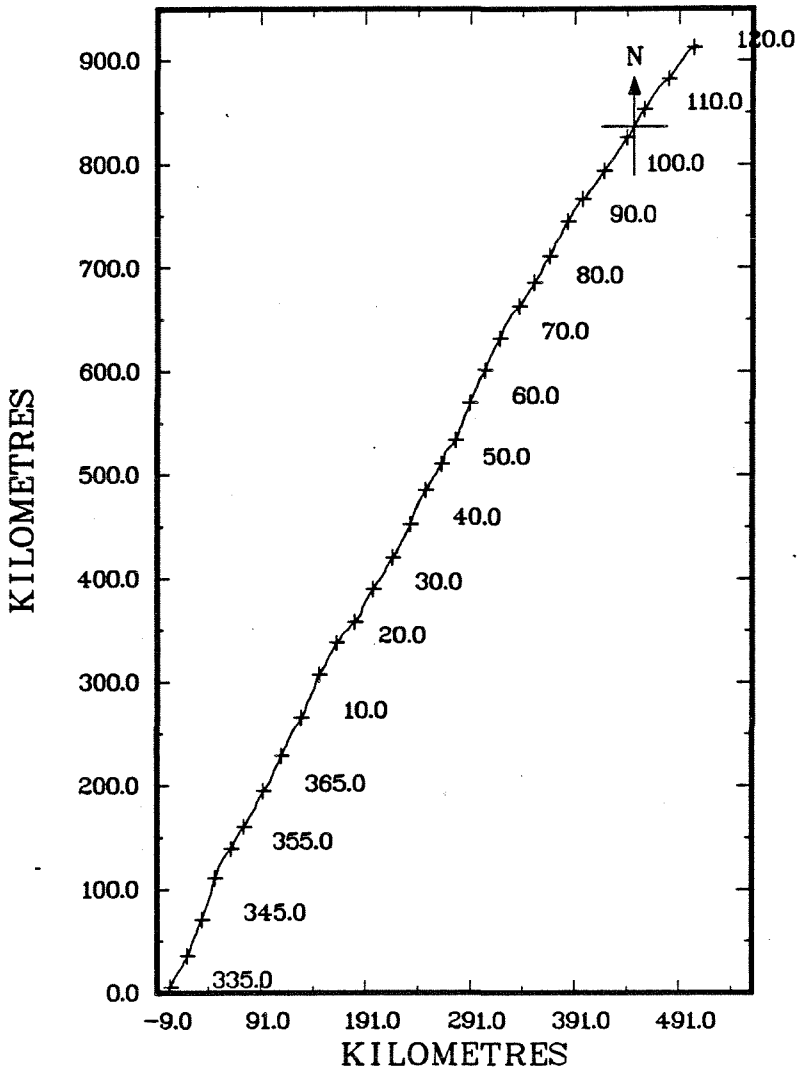

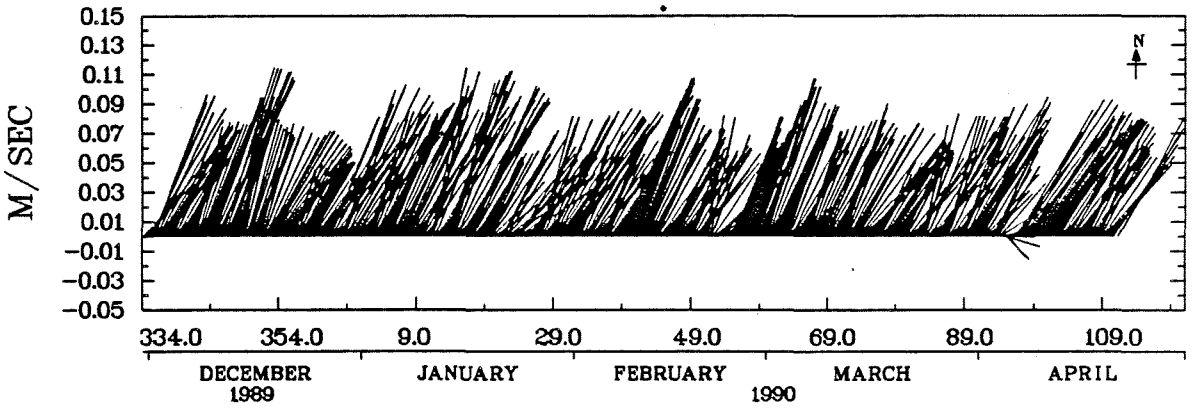

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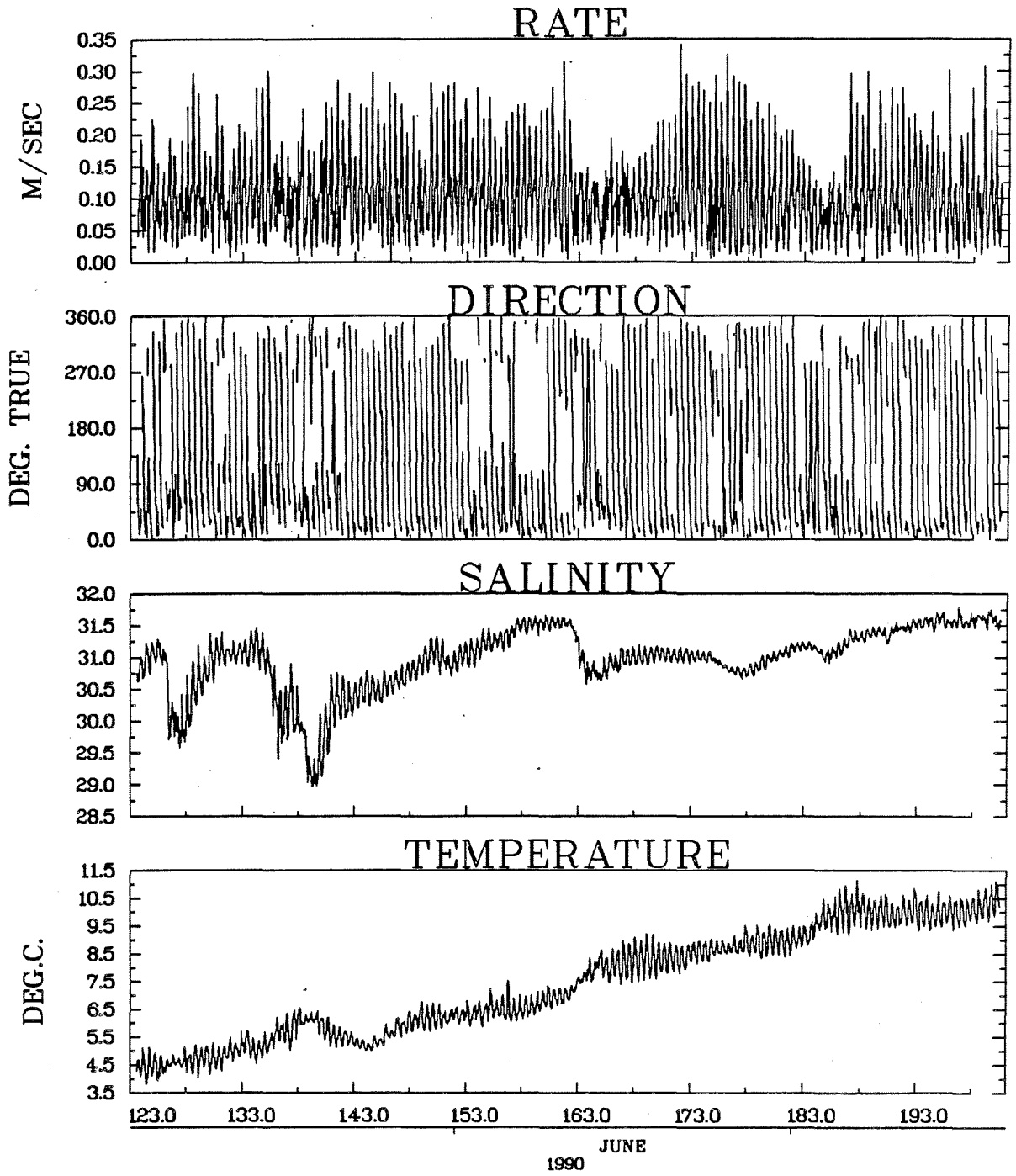

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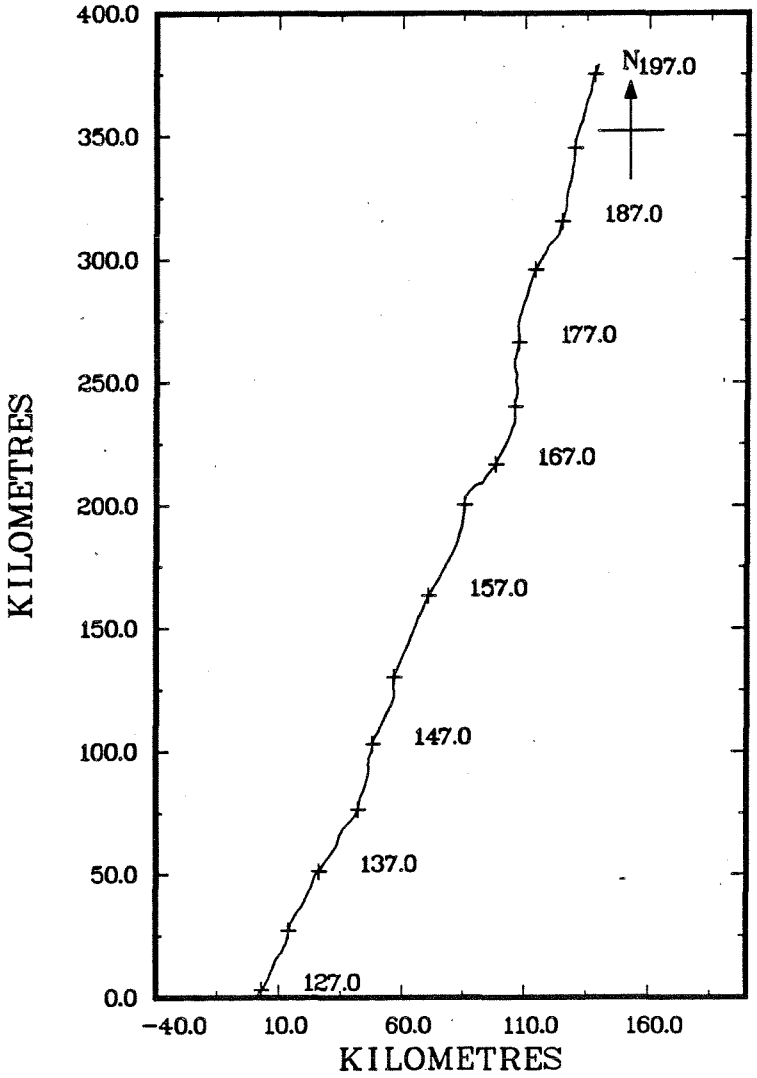

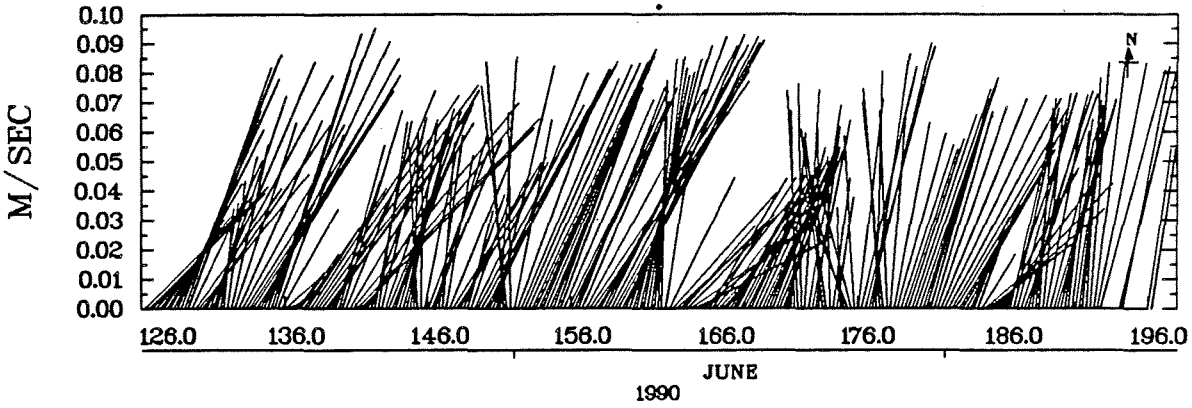

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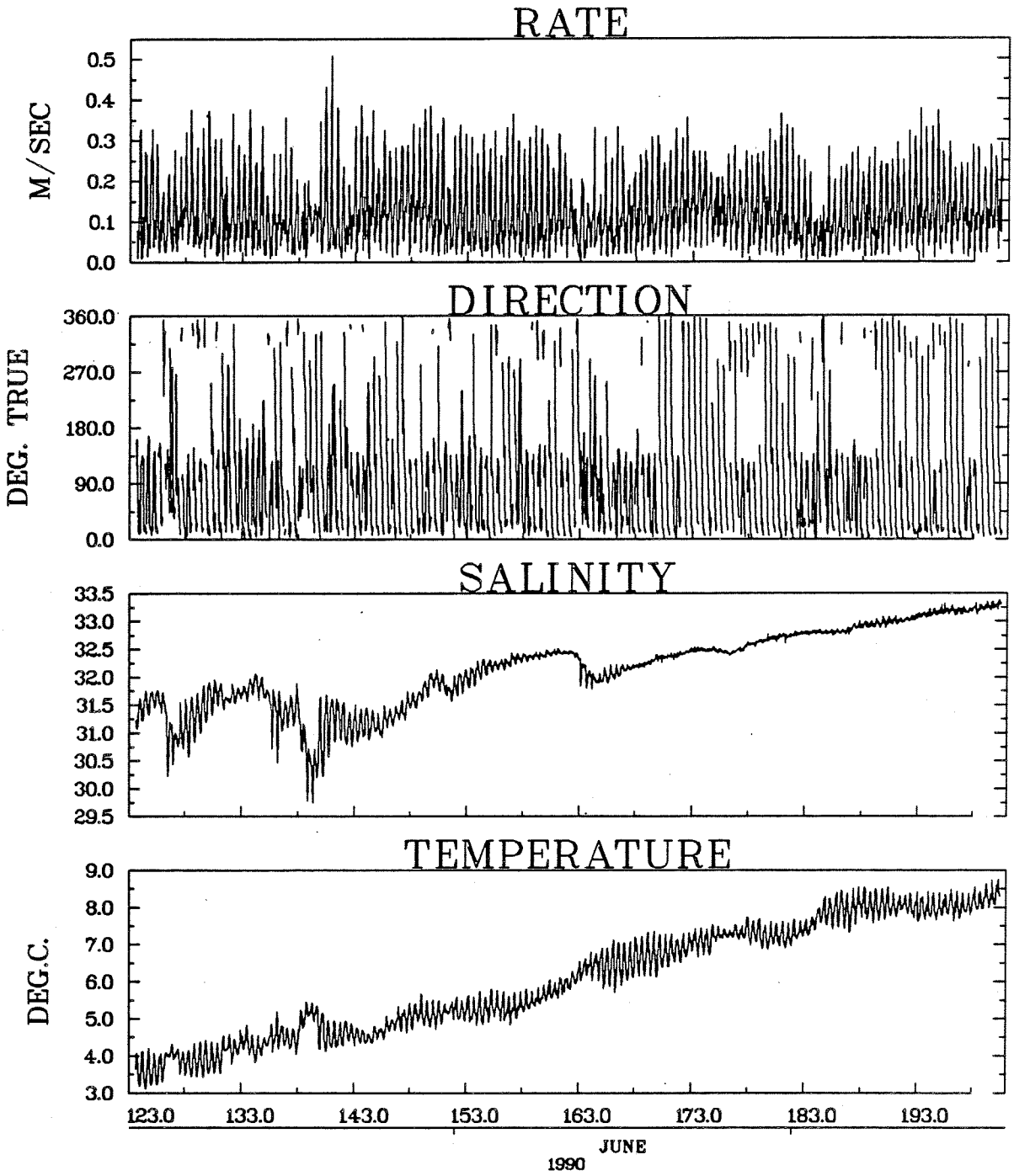

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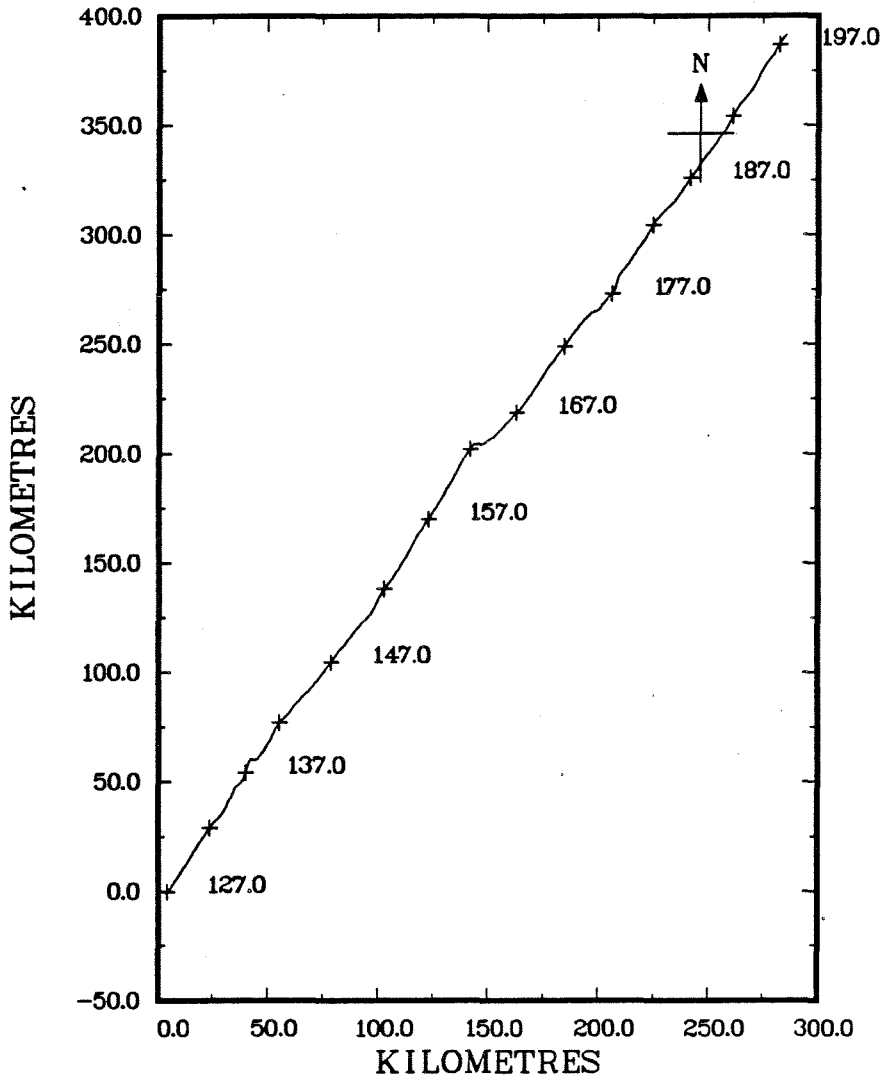

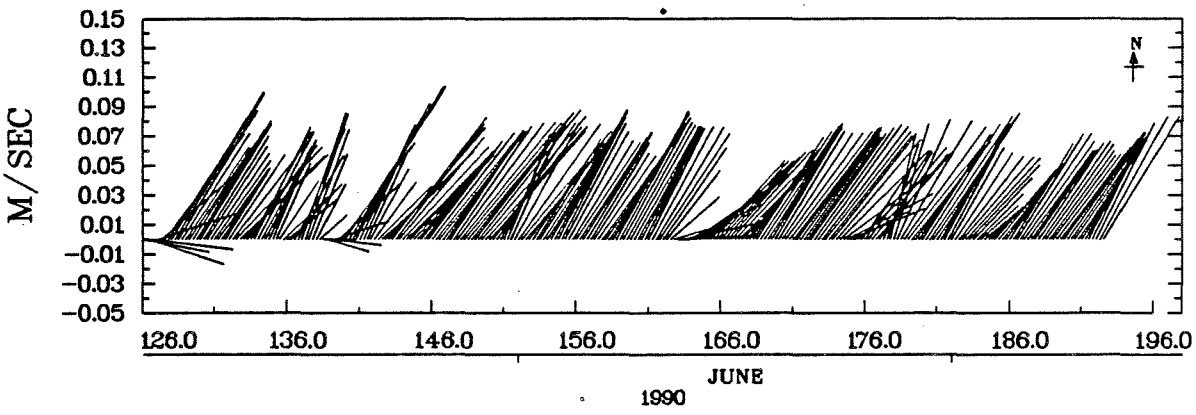

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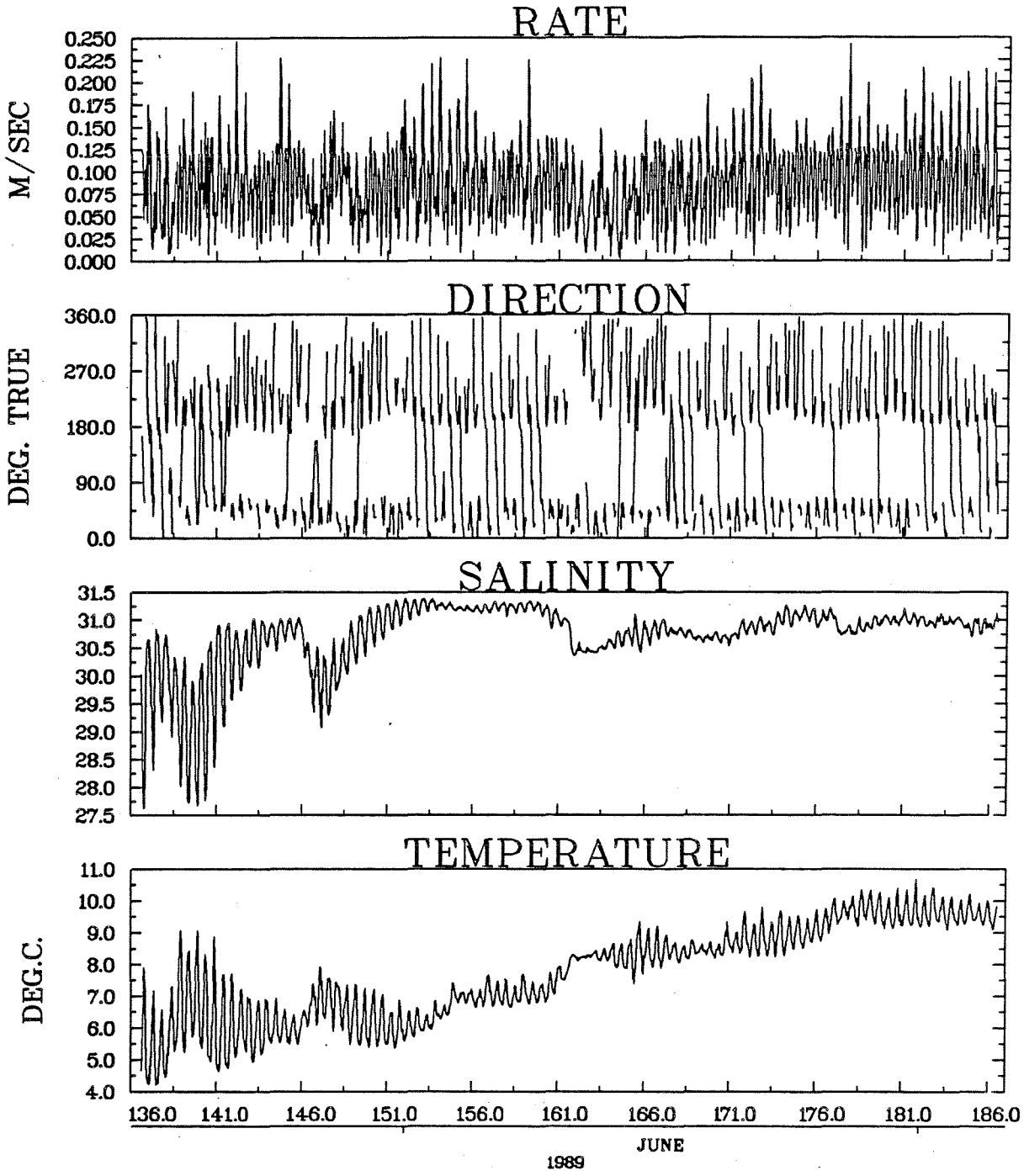

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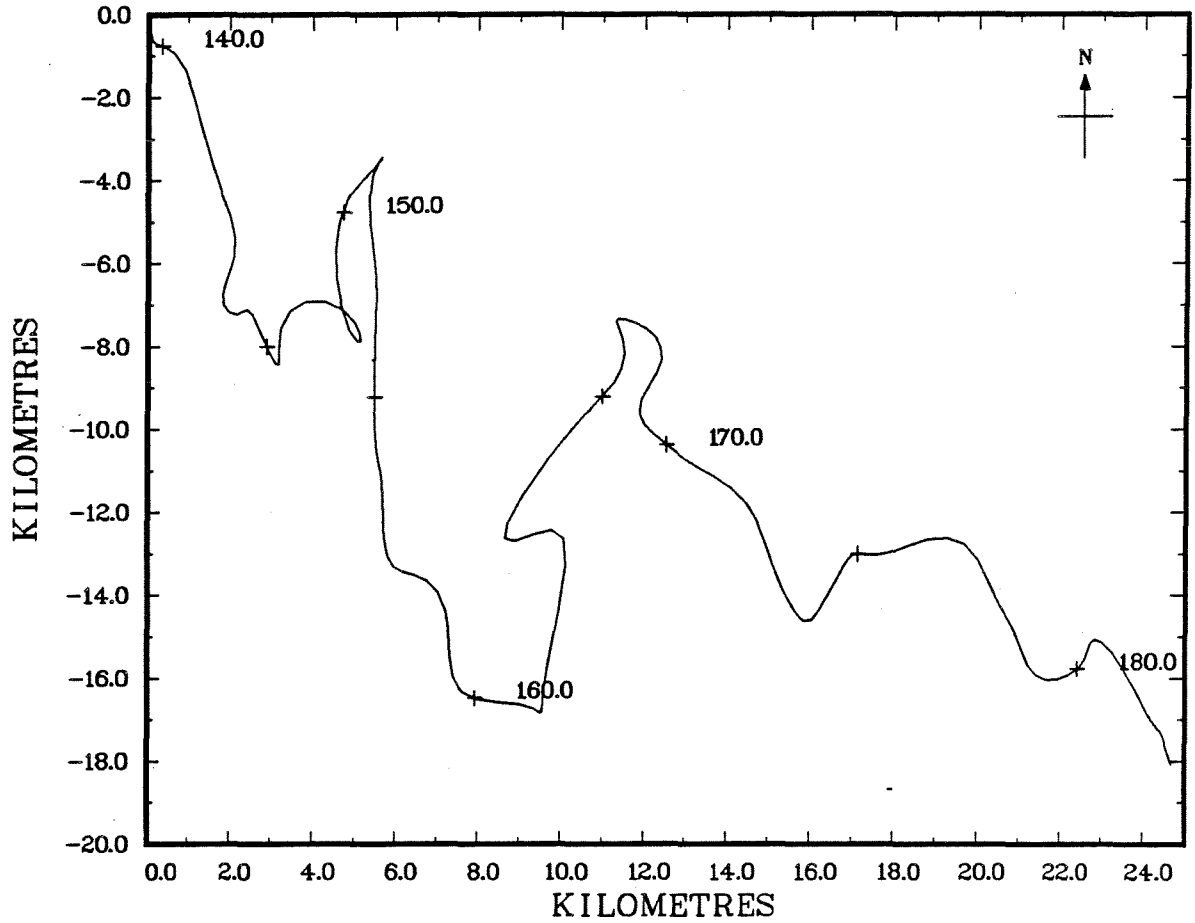

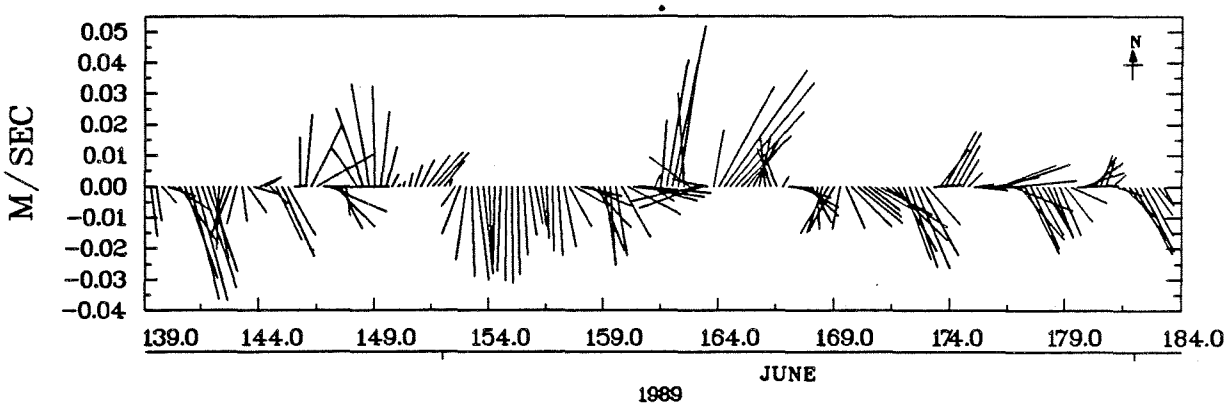

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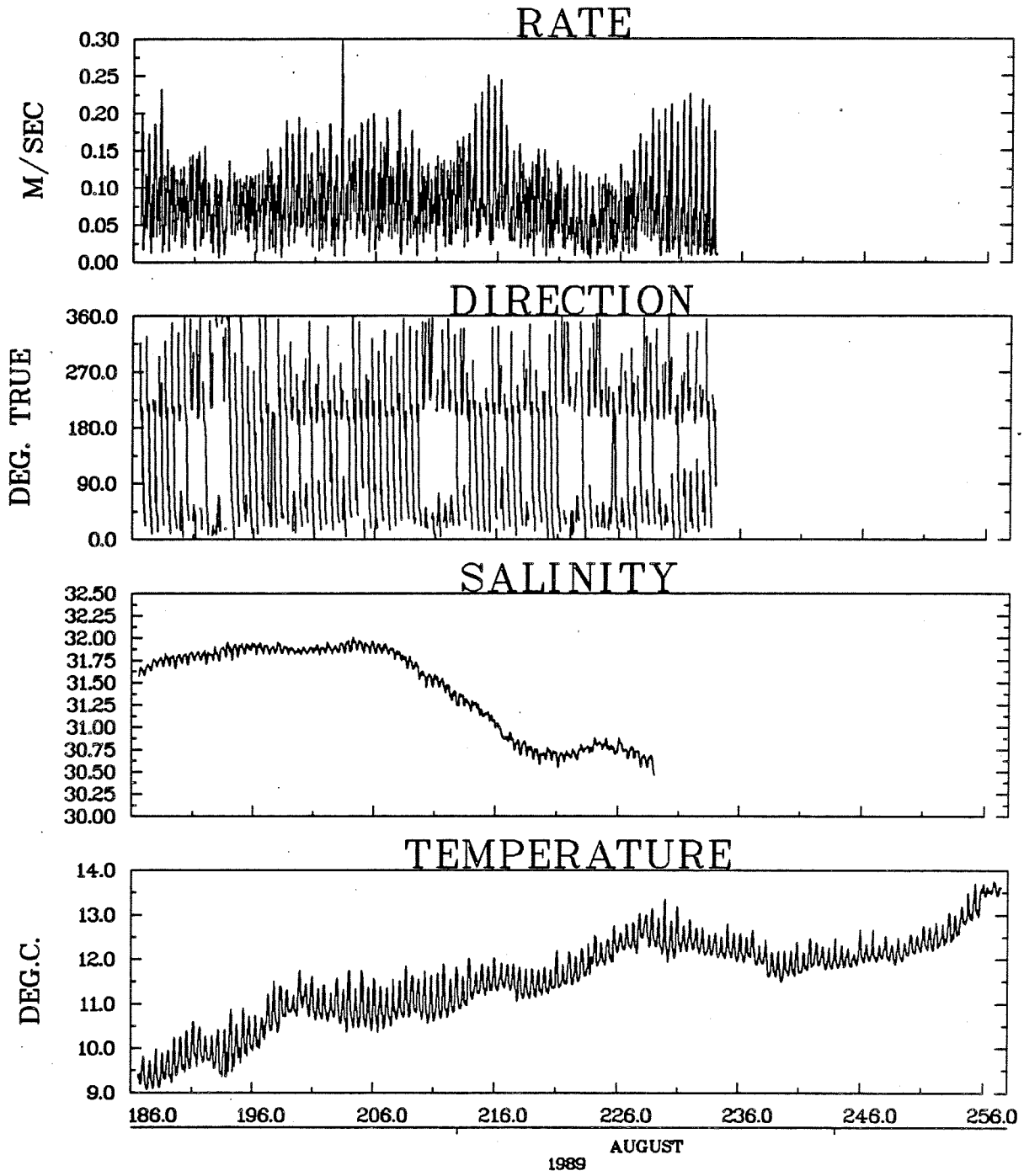

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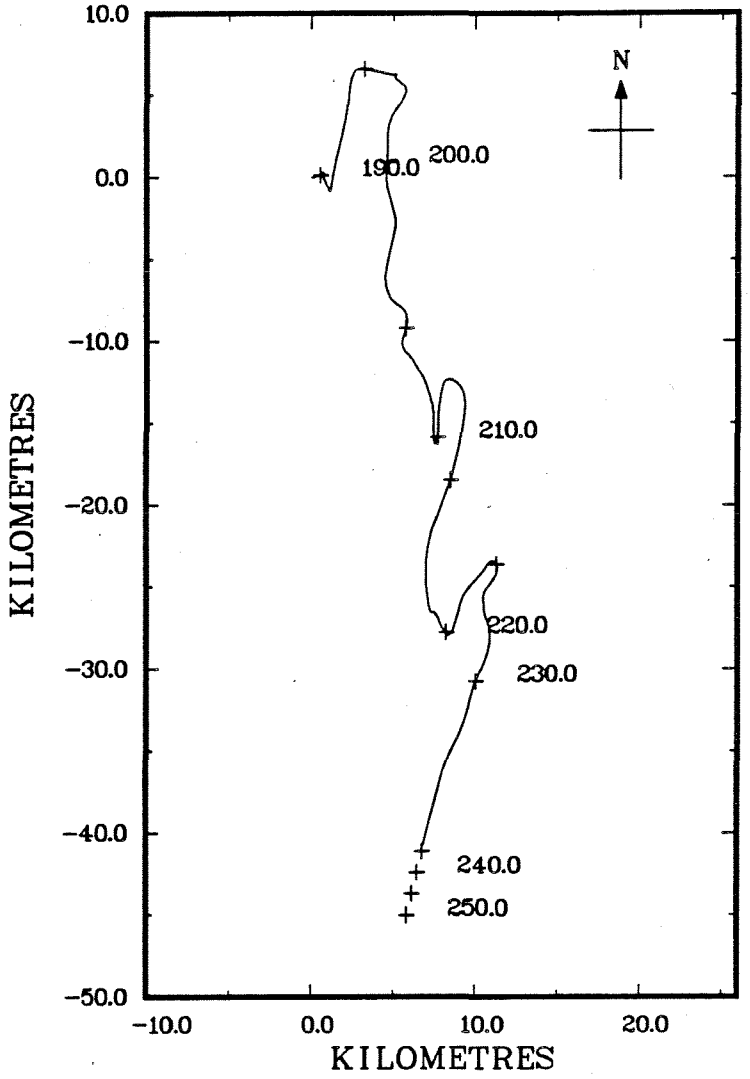

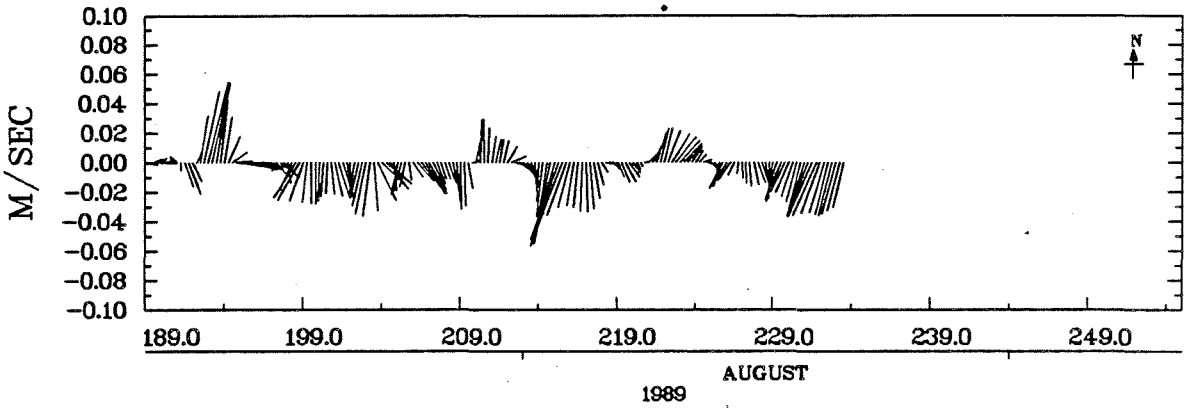

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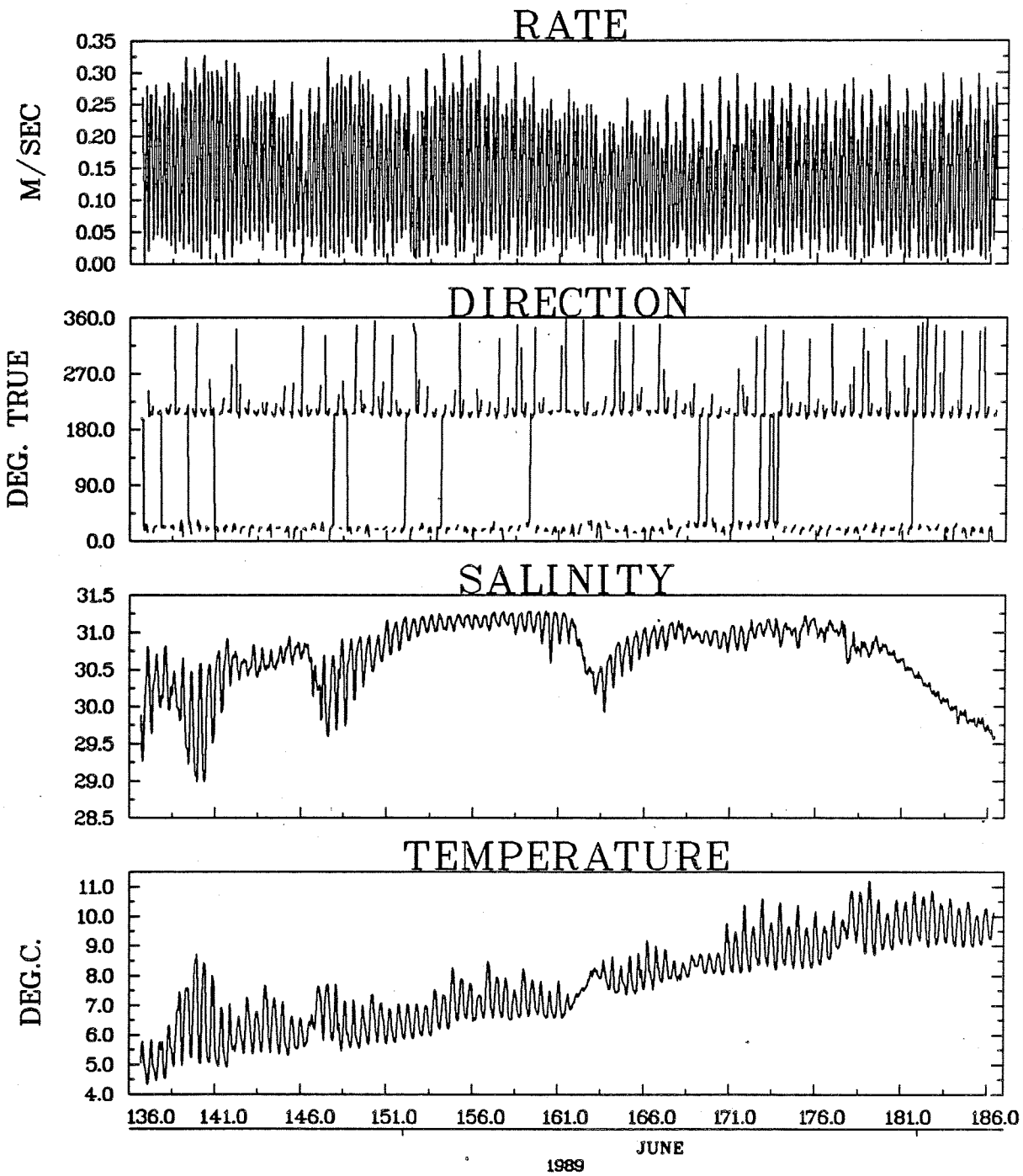

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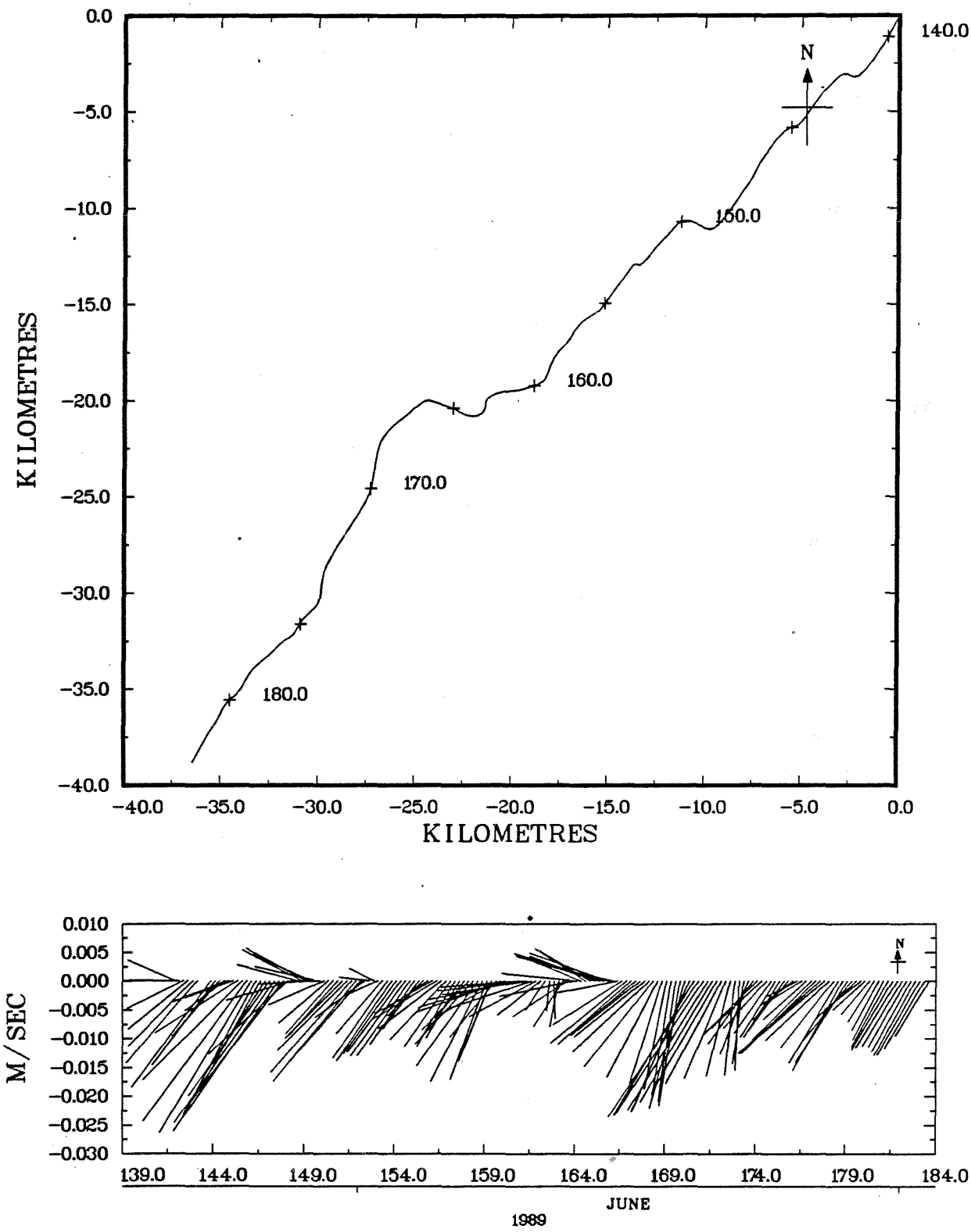

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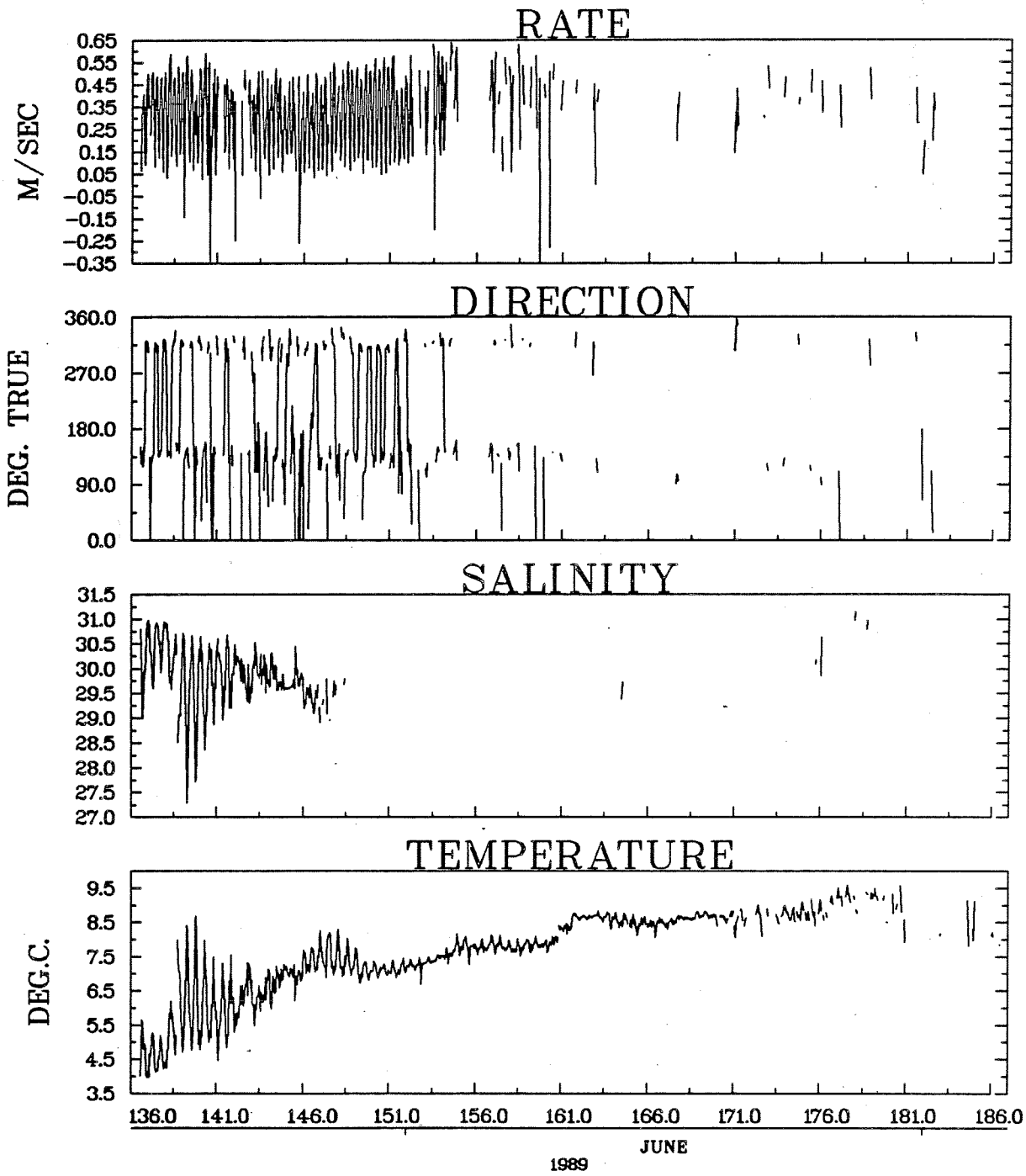

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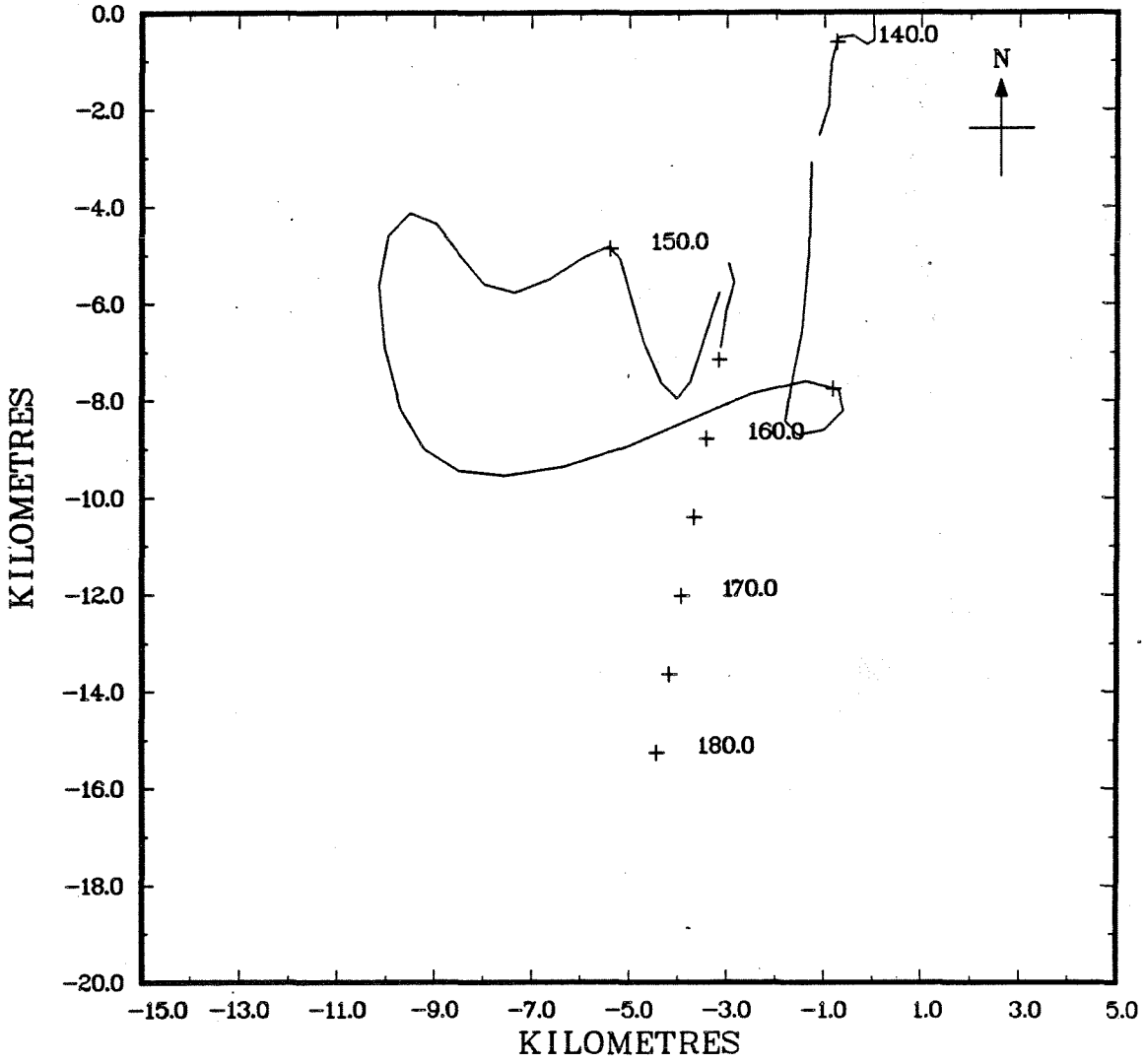

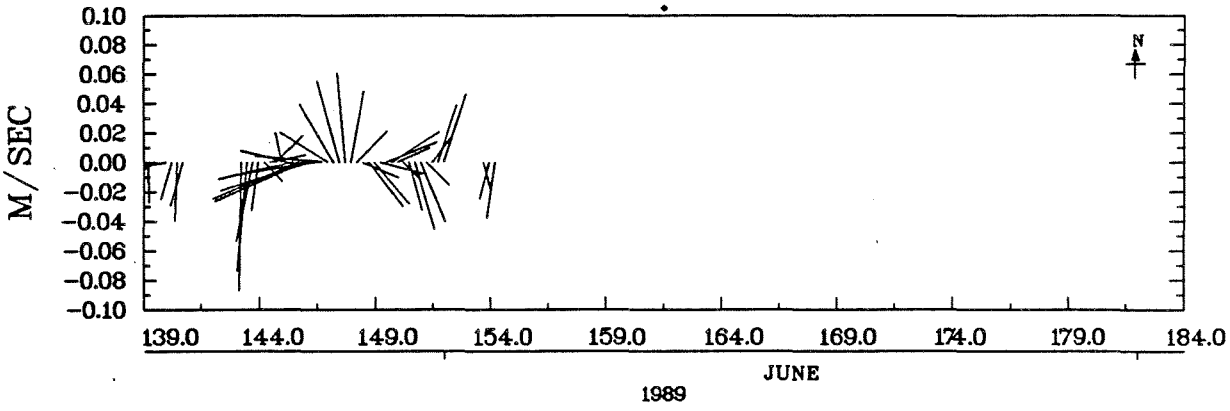

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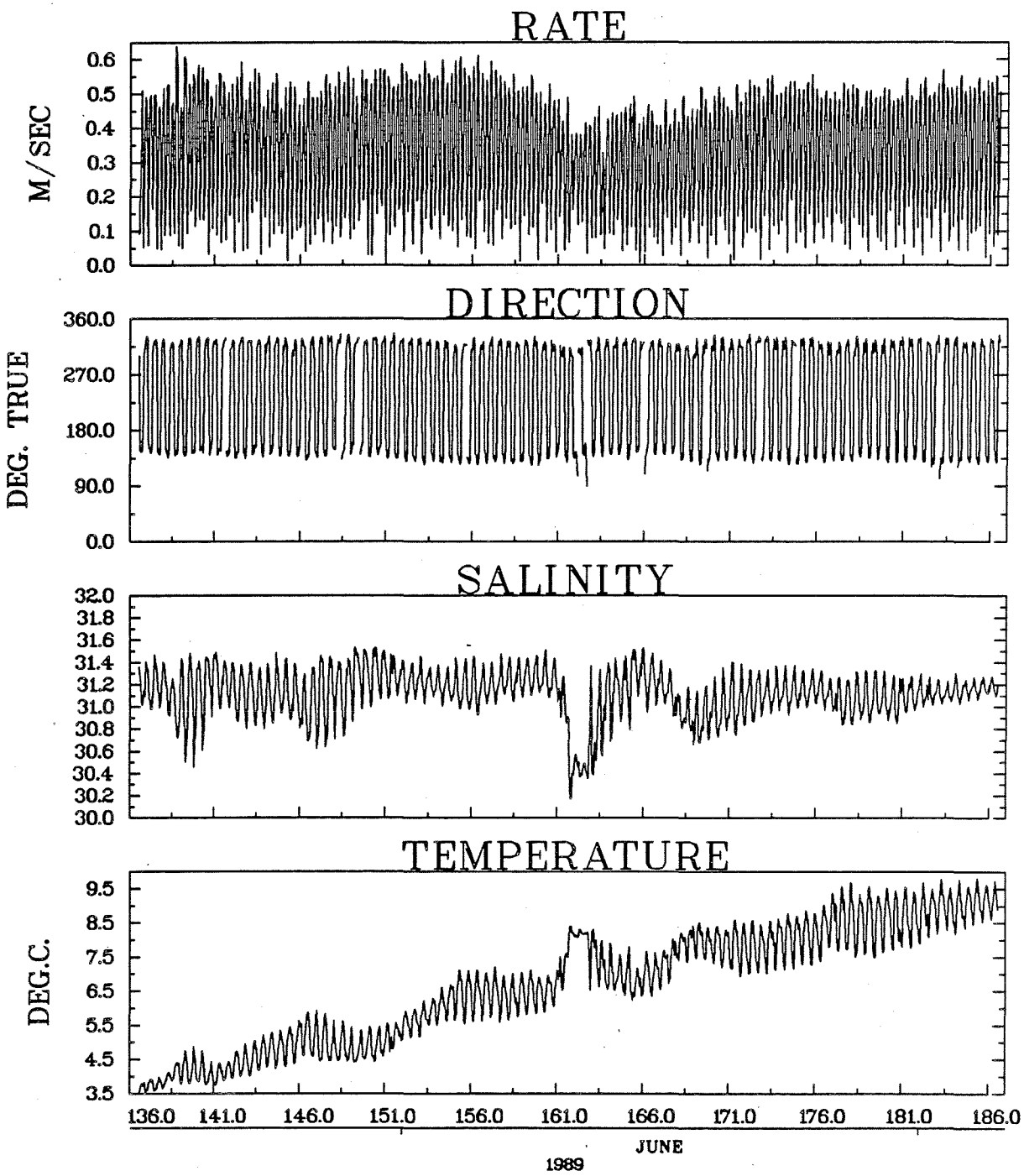

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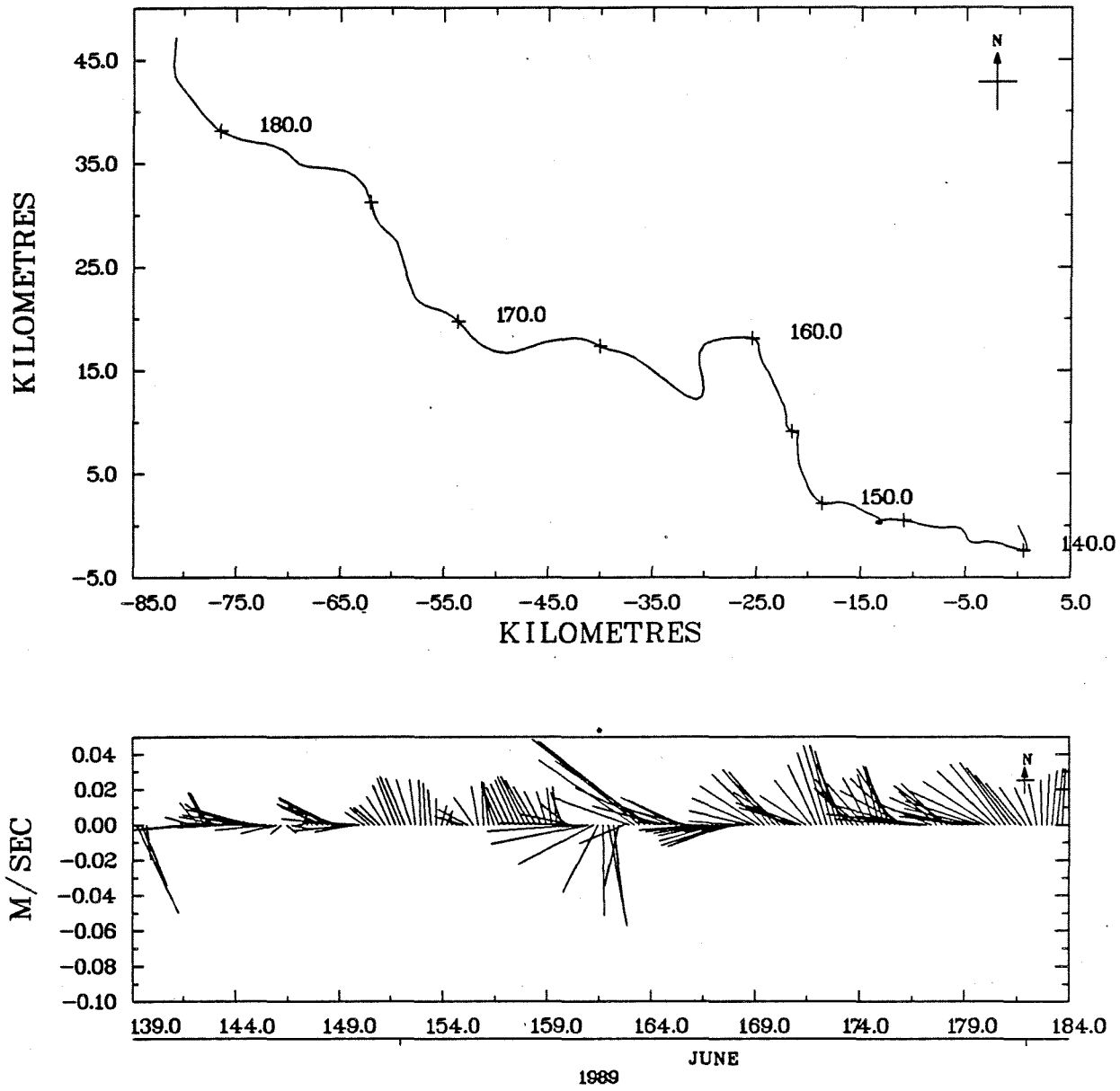

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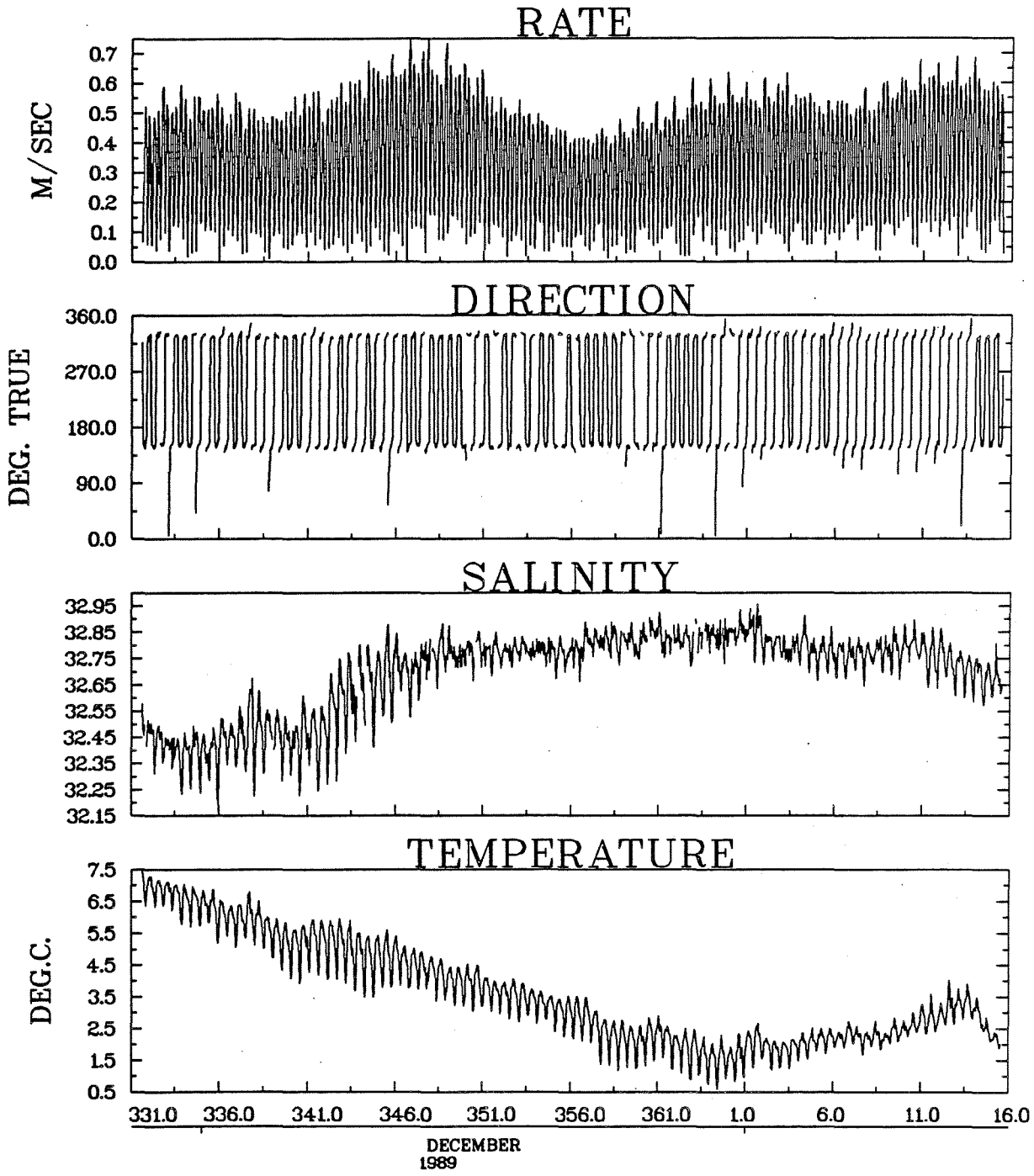
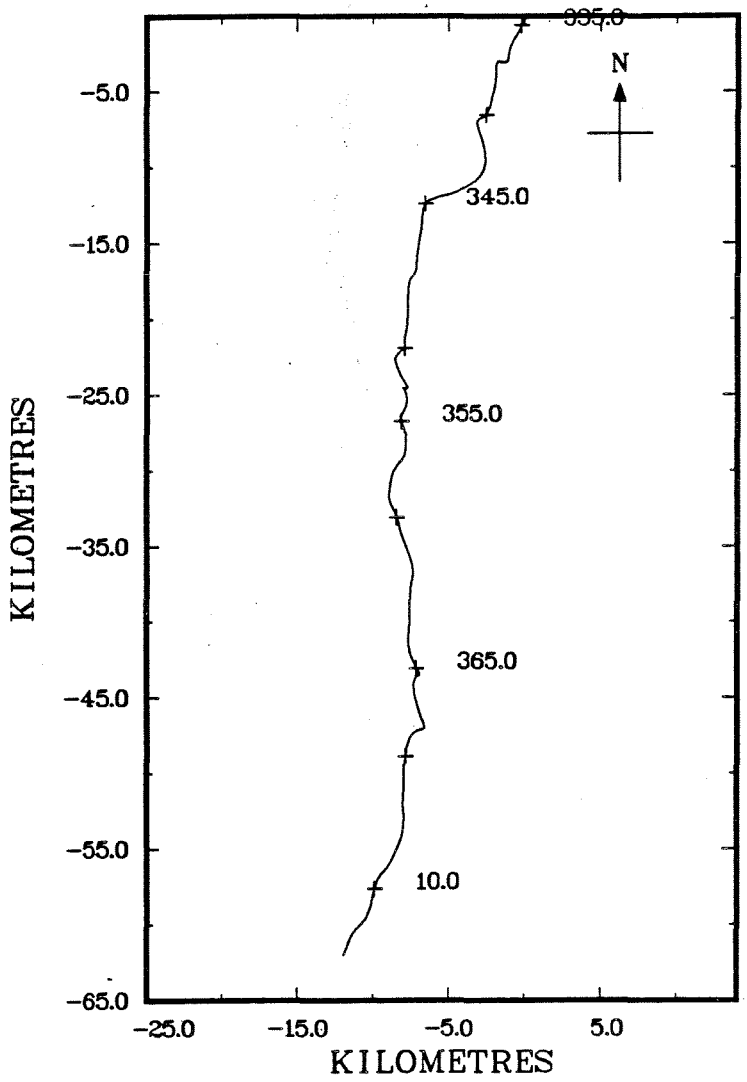
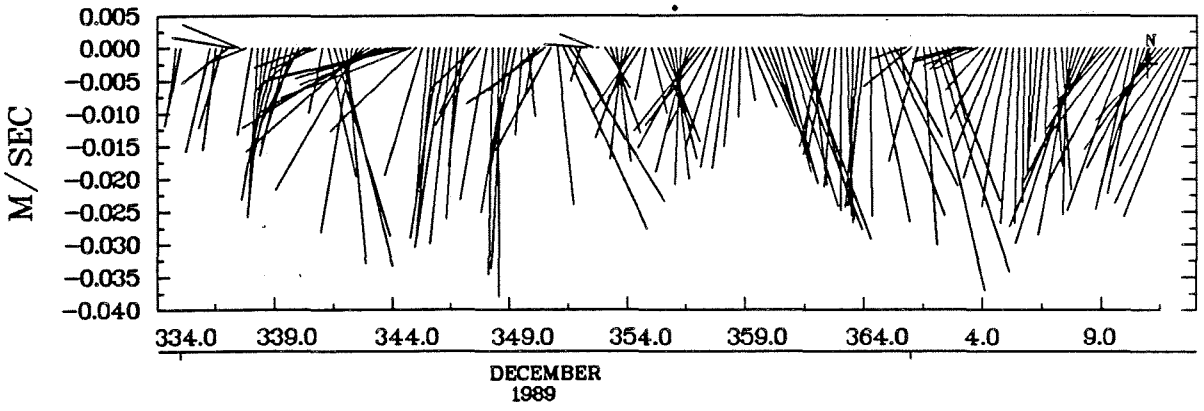


L'ETANG INLET SITE 4 5.7 M.





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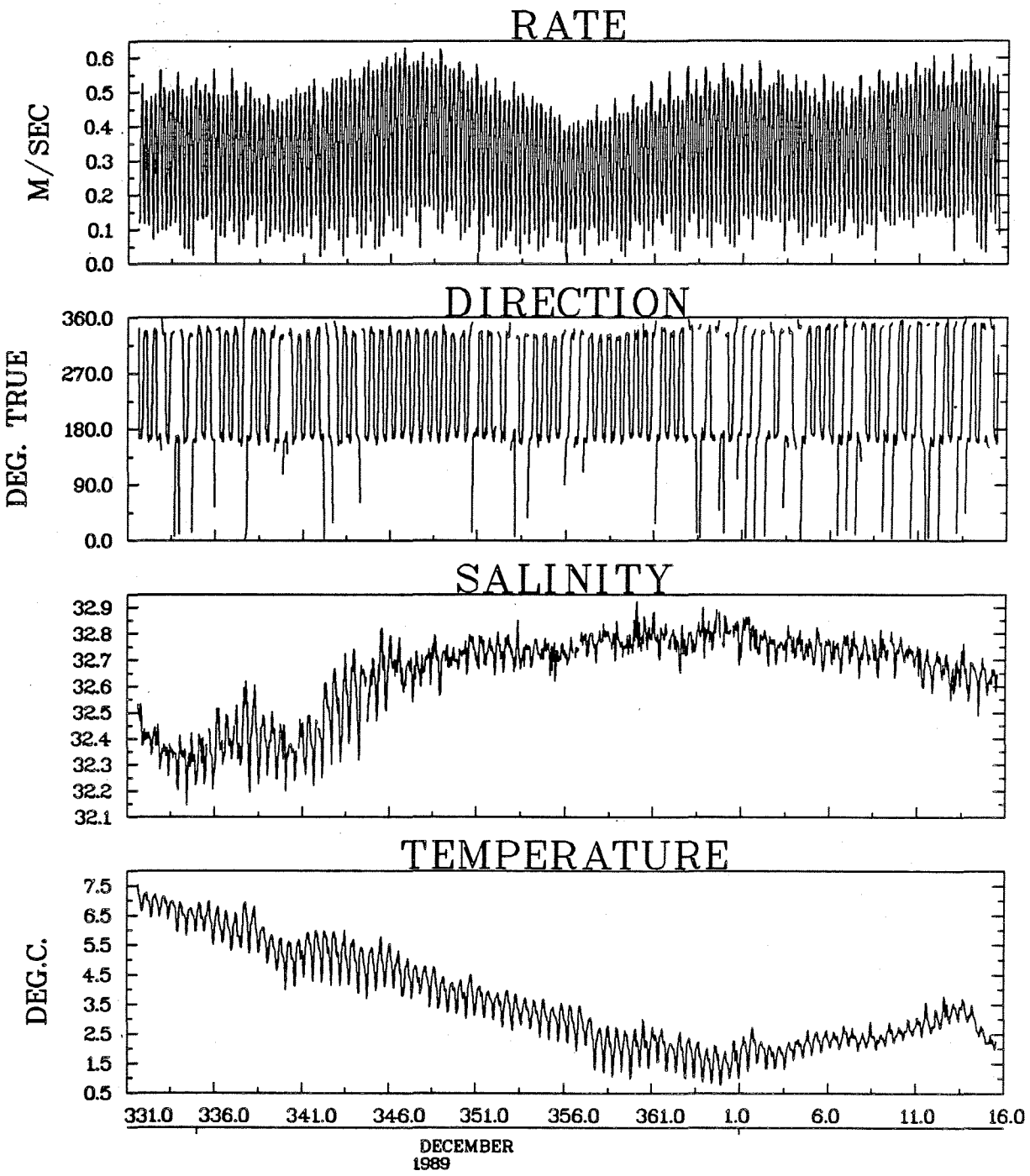

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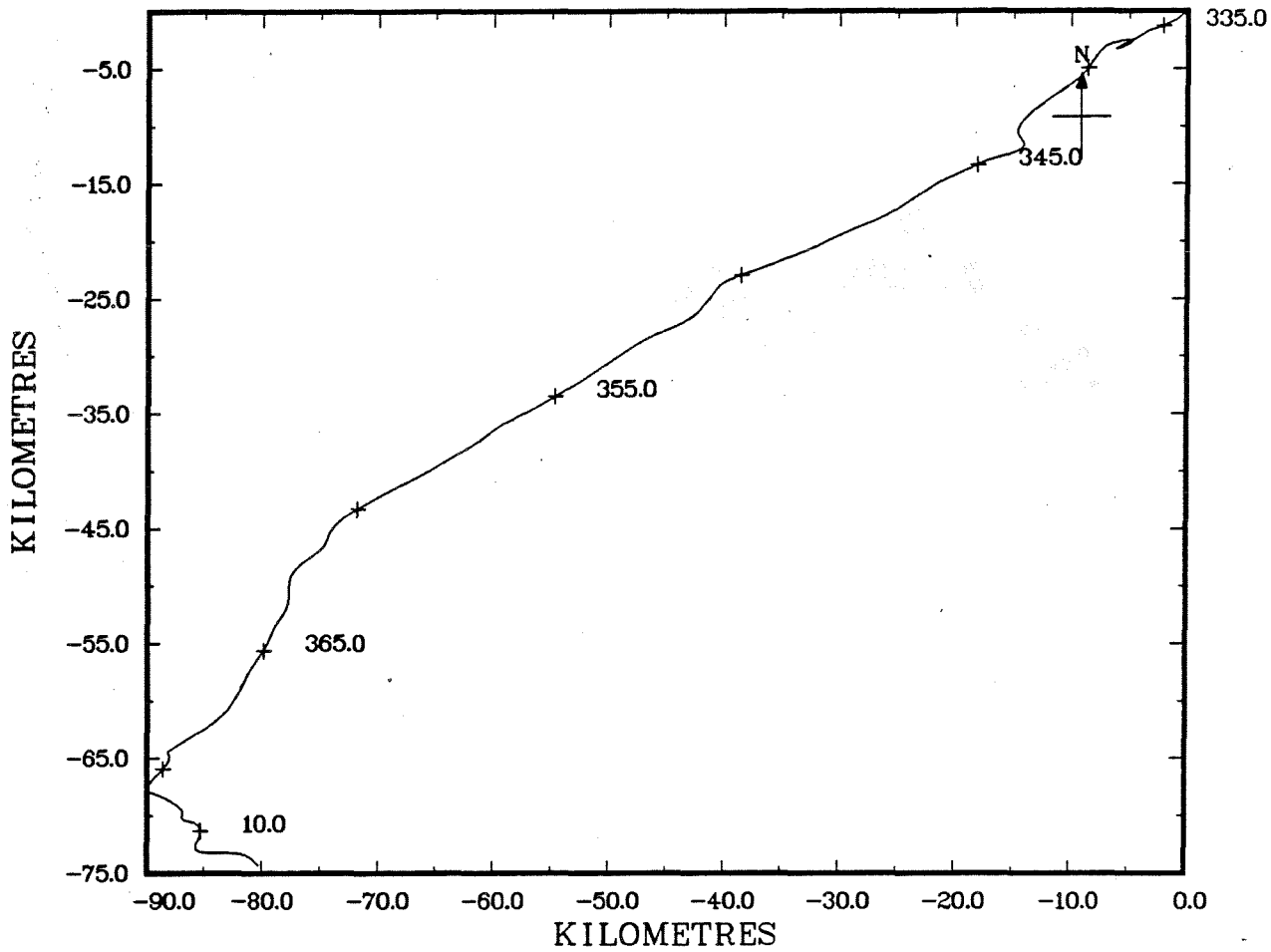

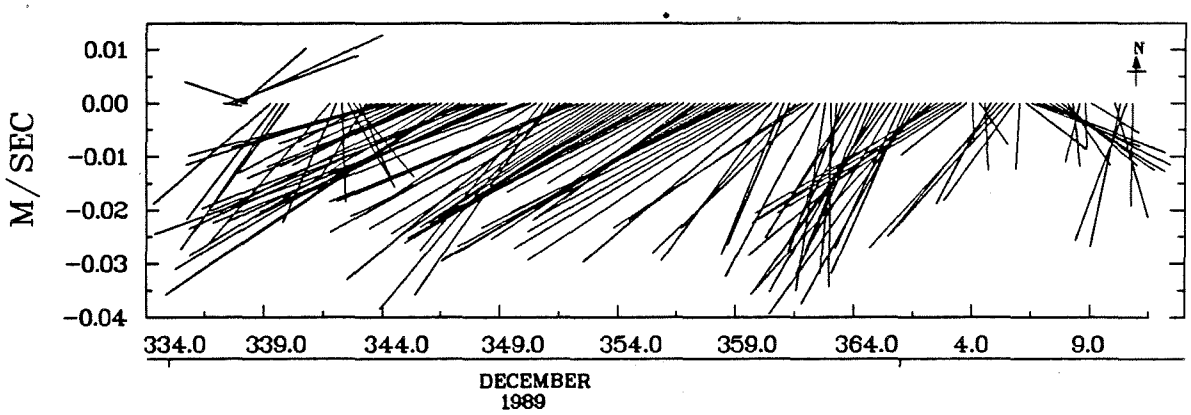

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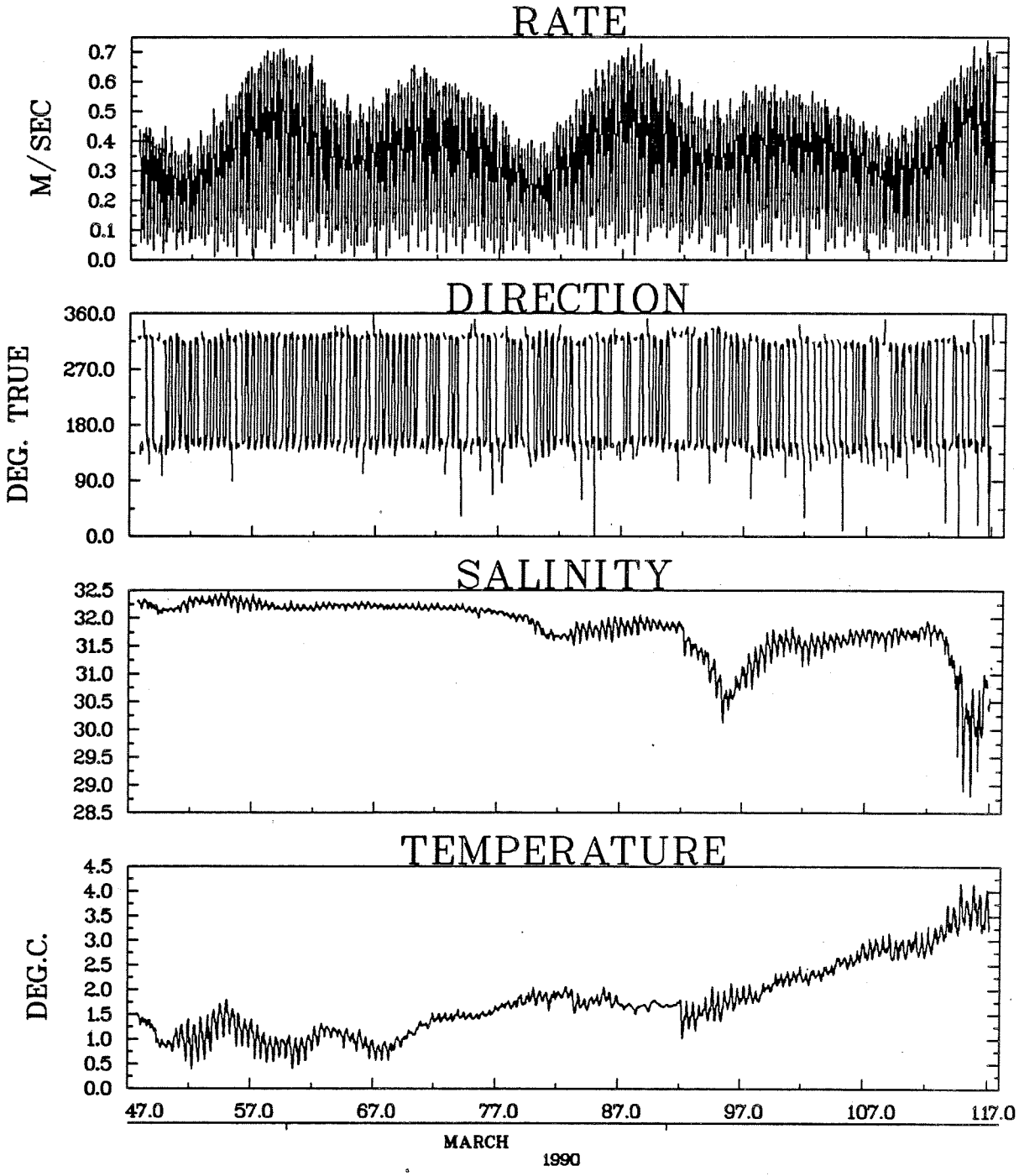

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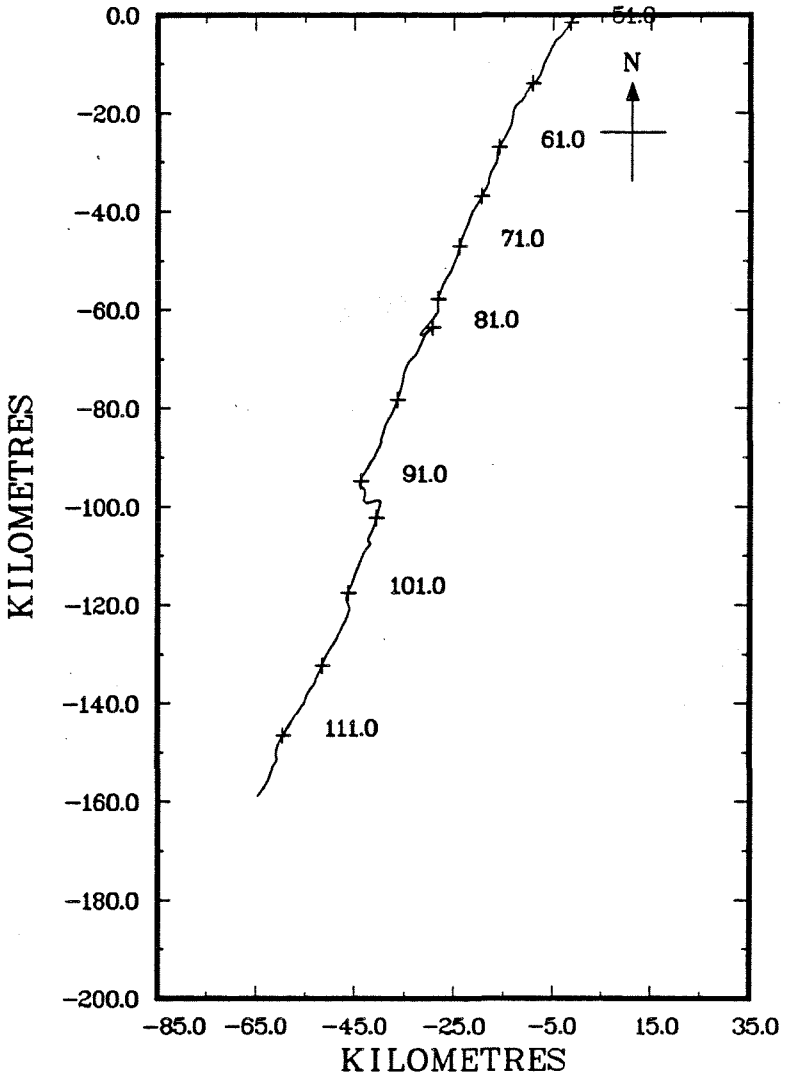

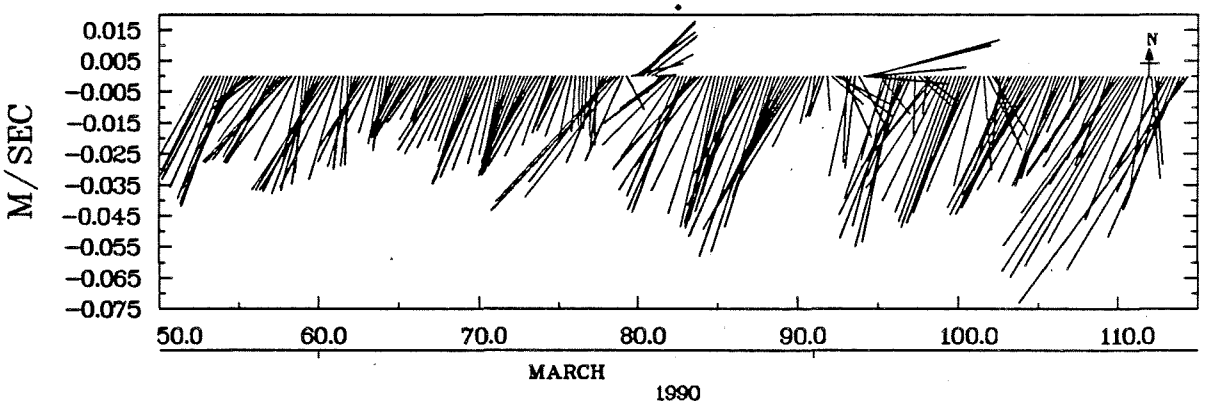

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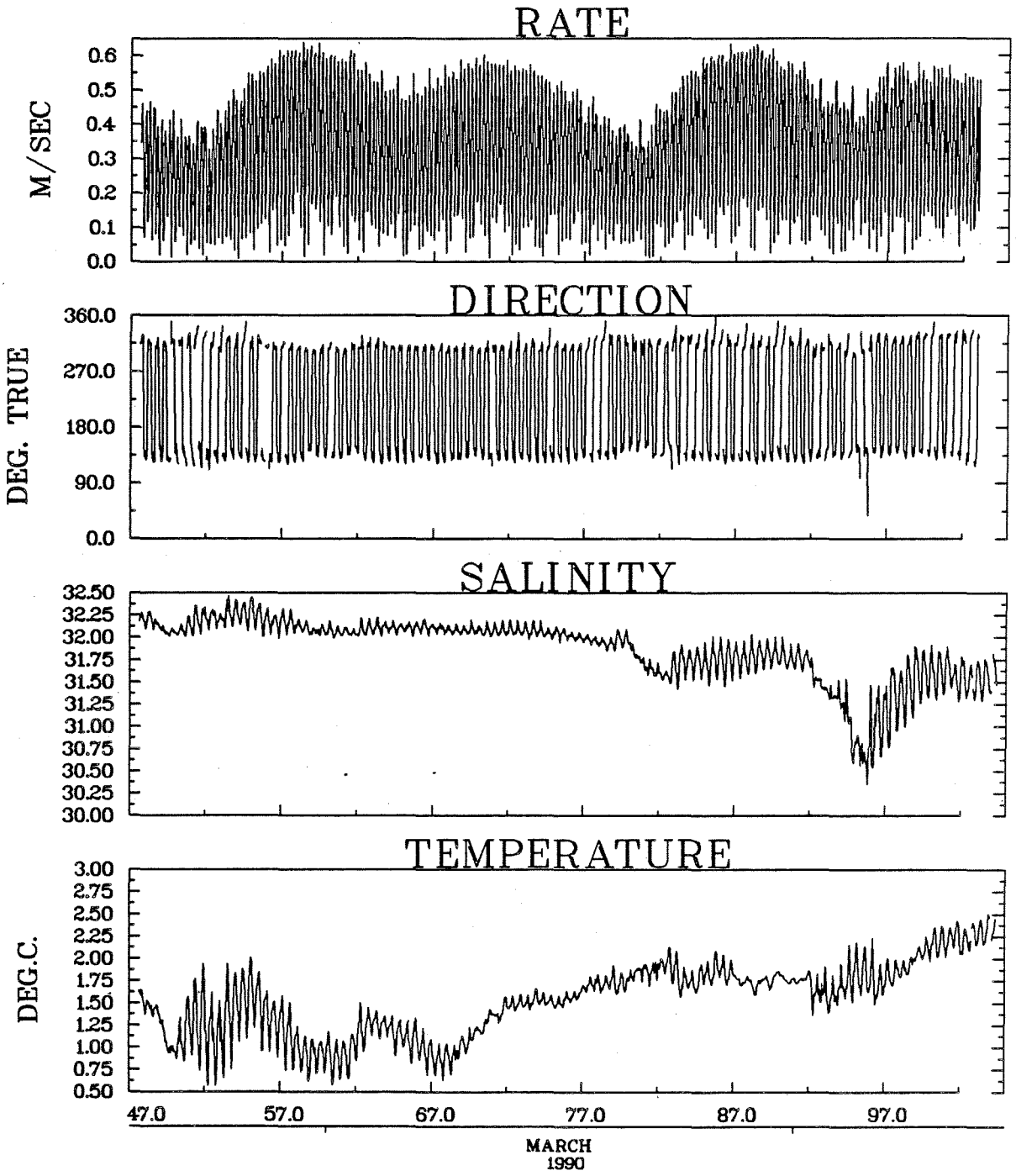

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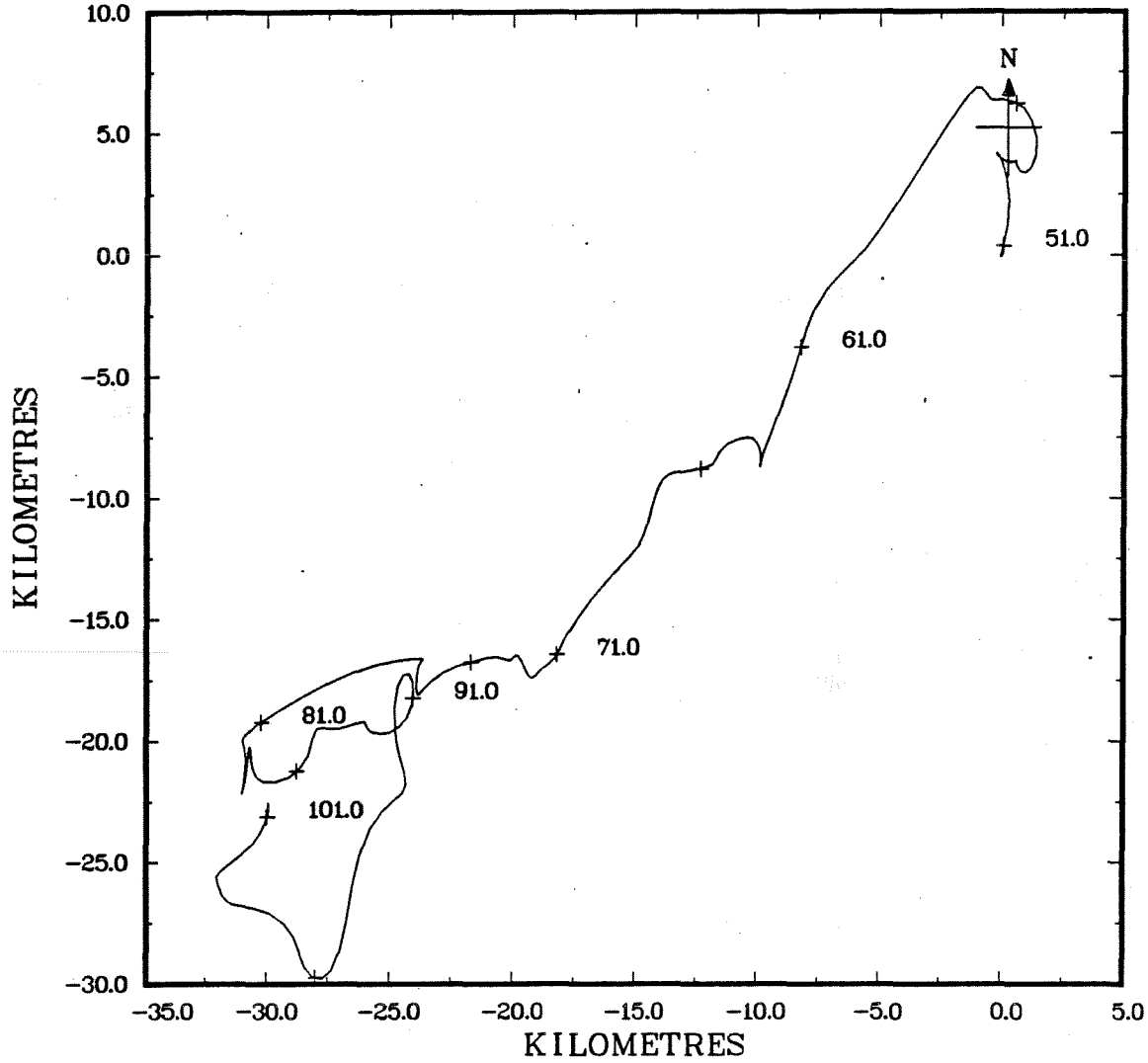

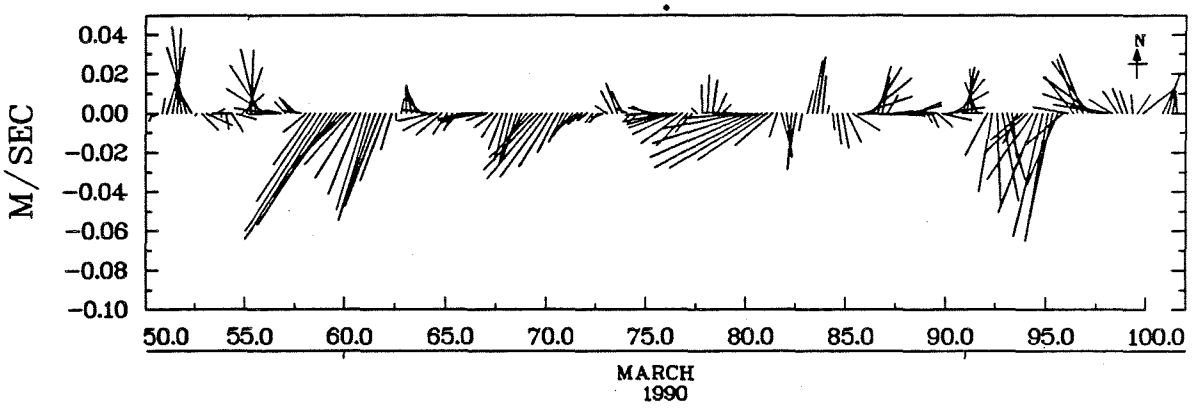

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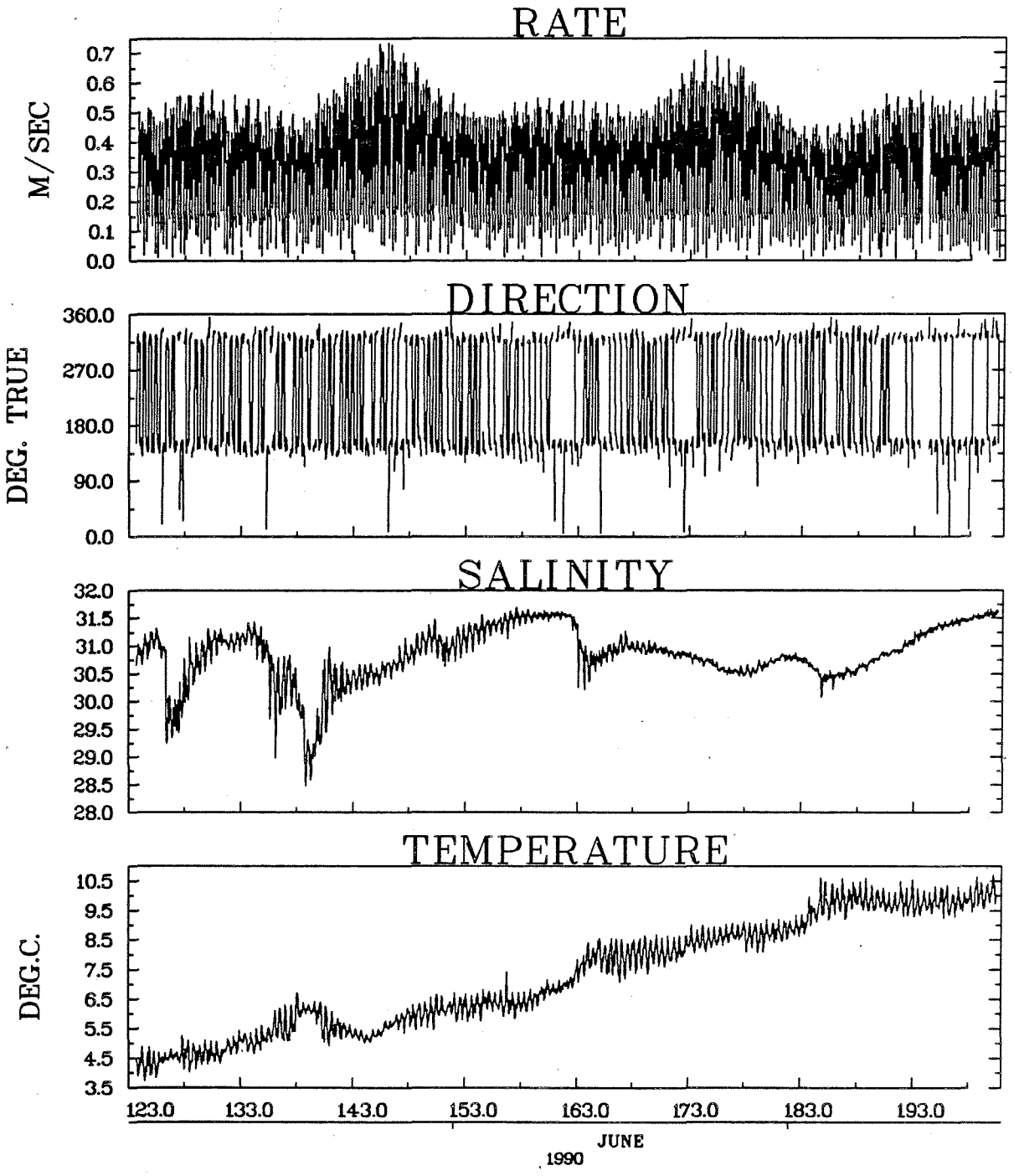

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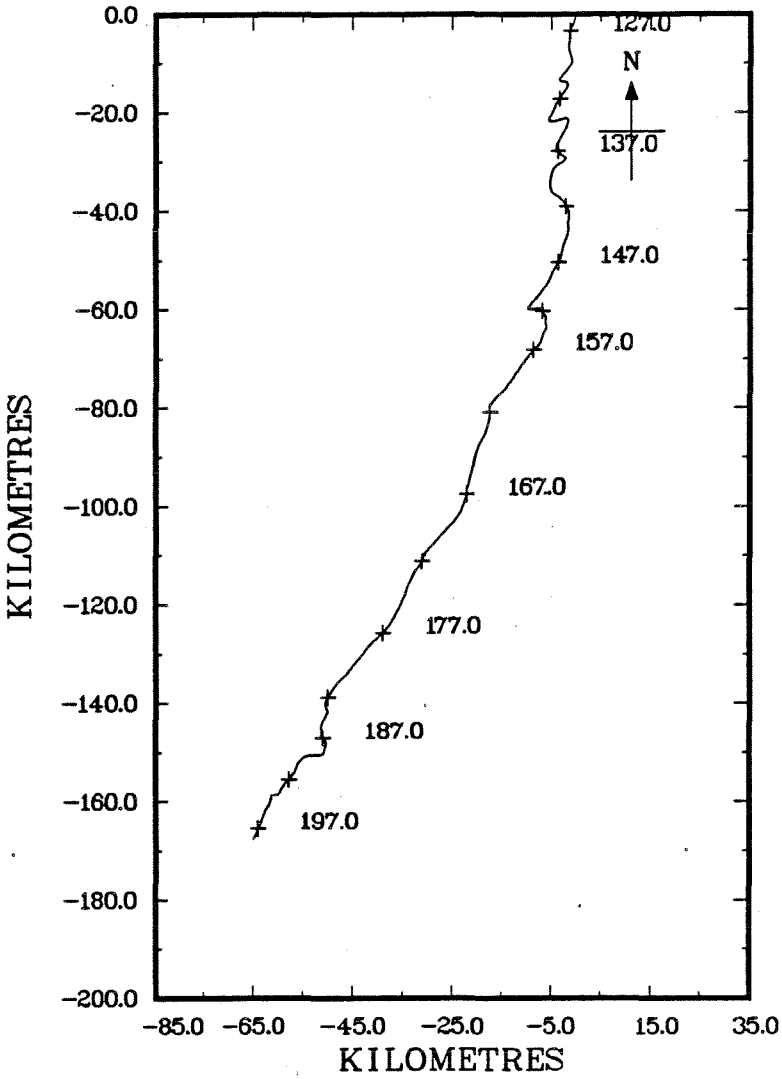

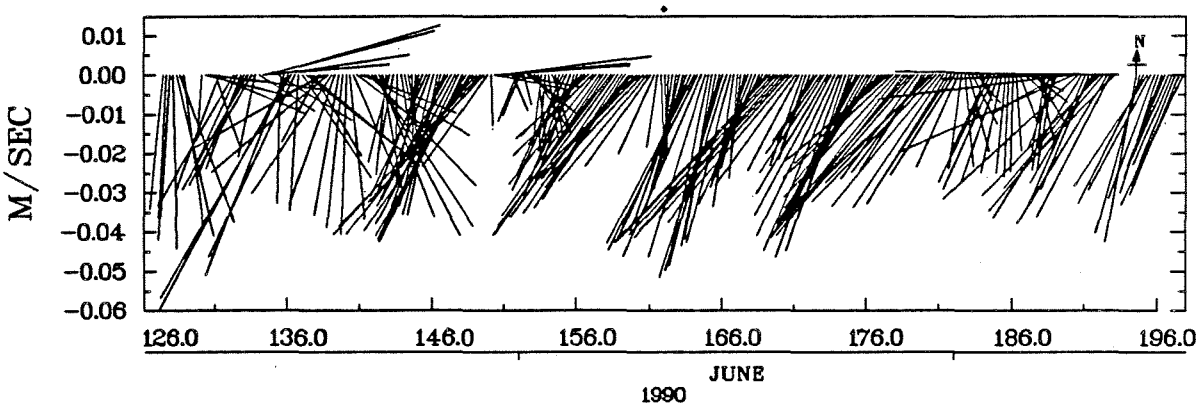

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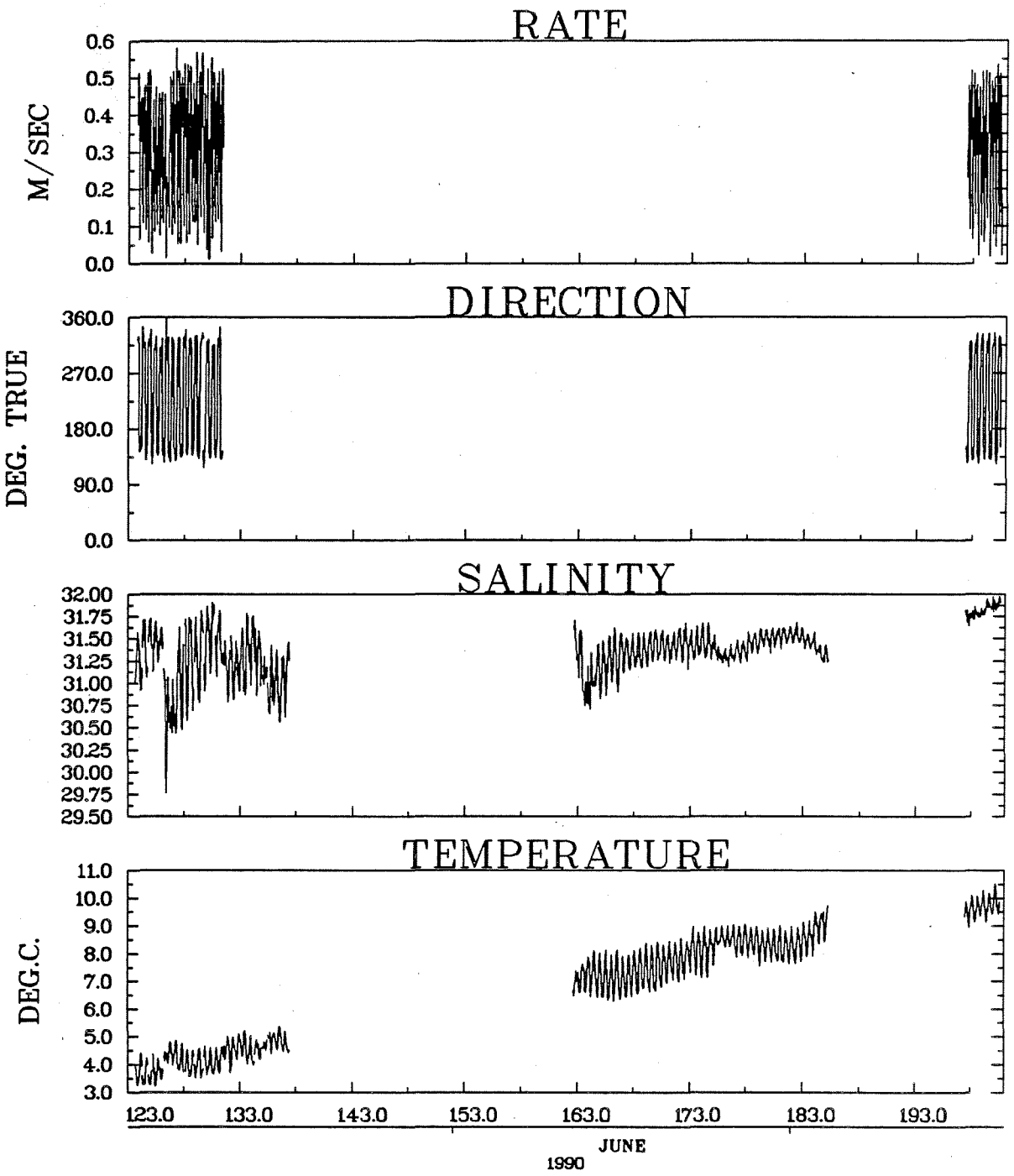

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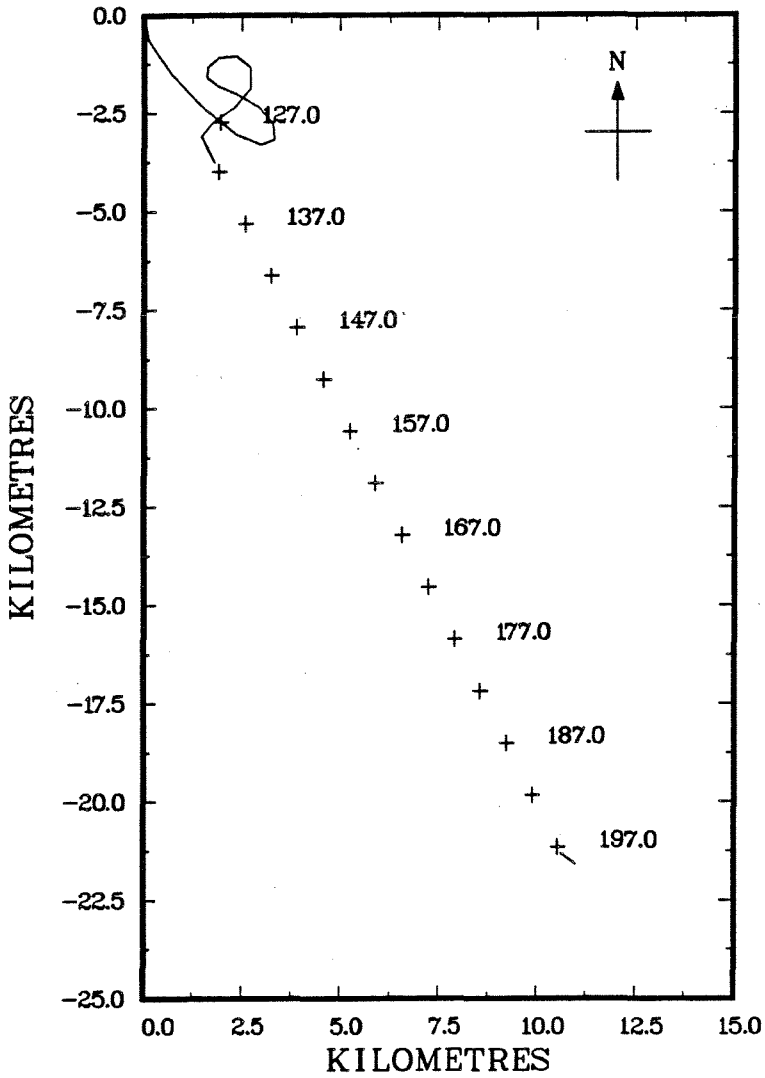

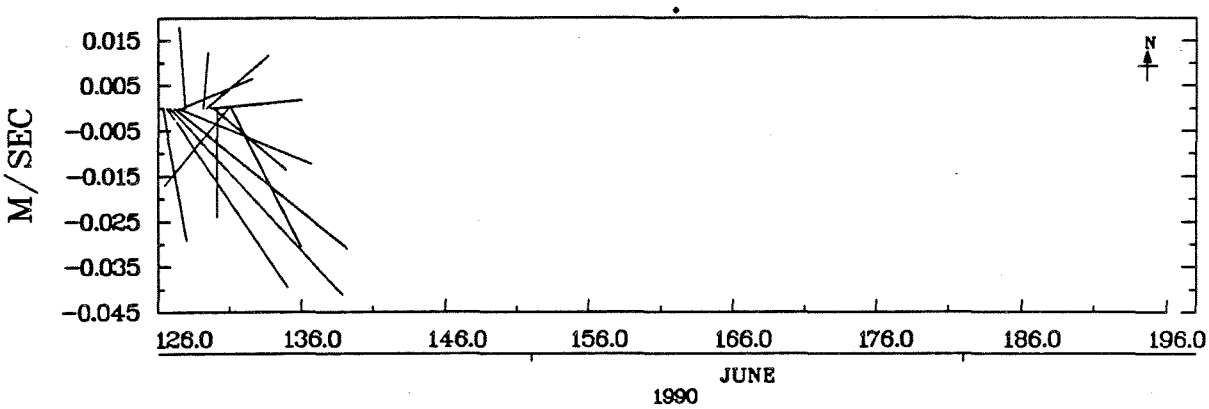

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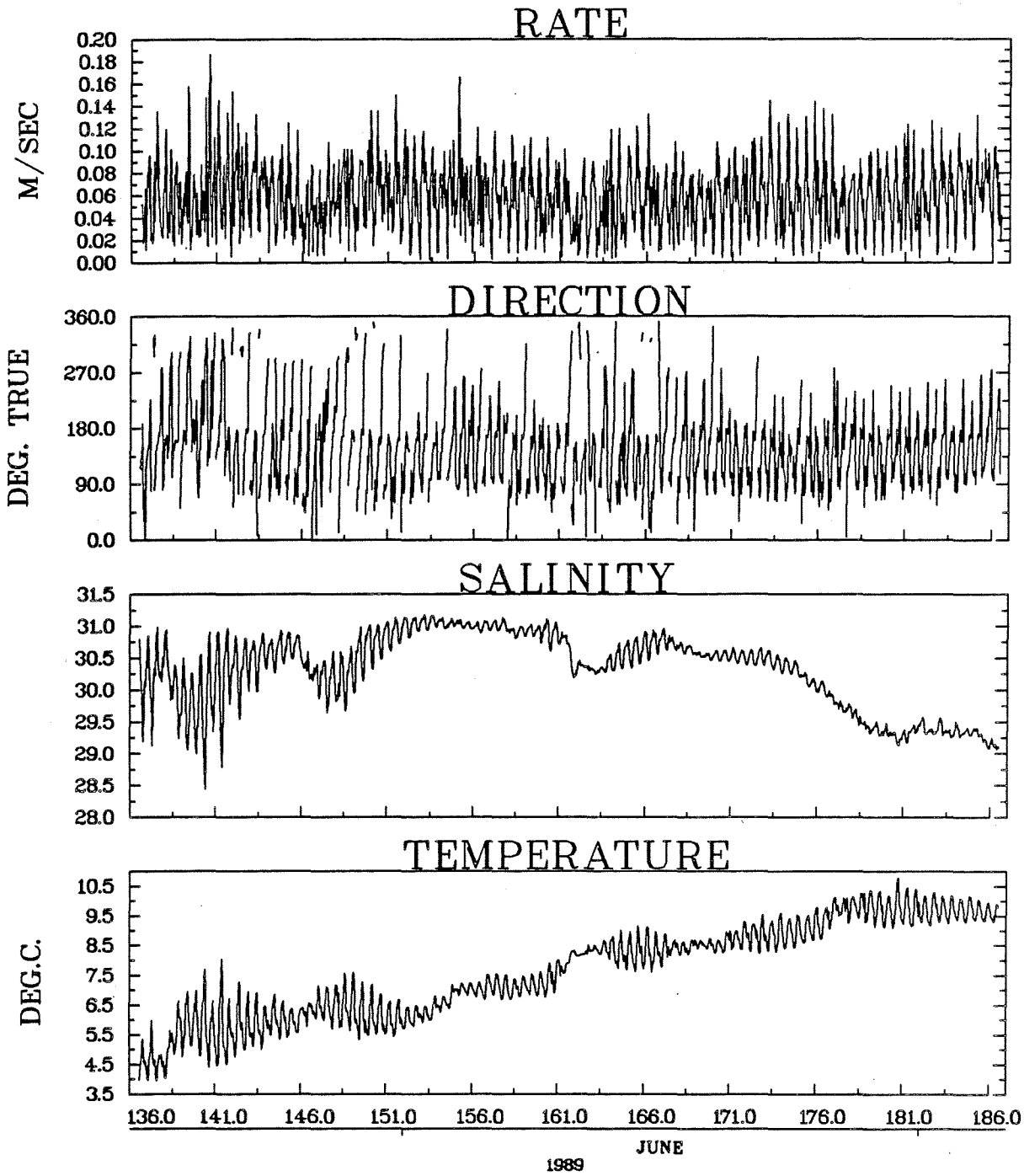

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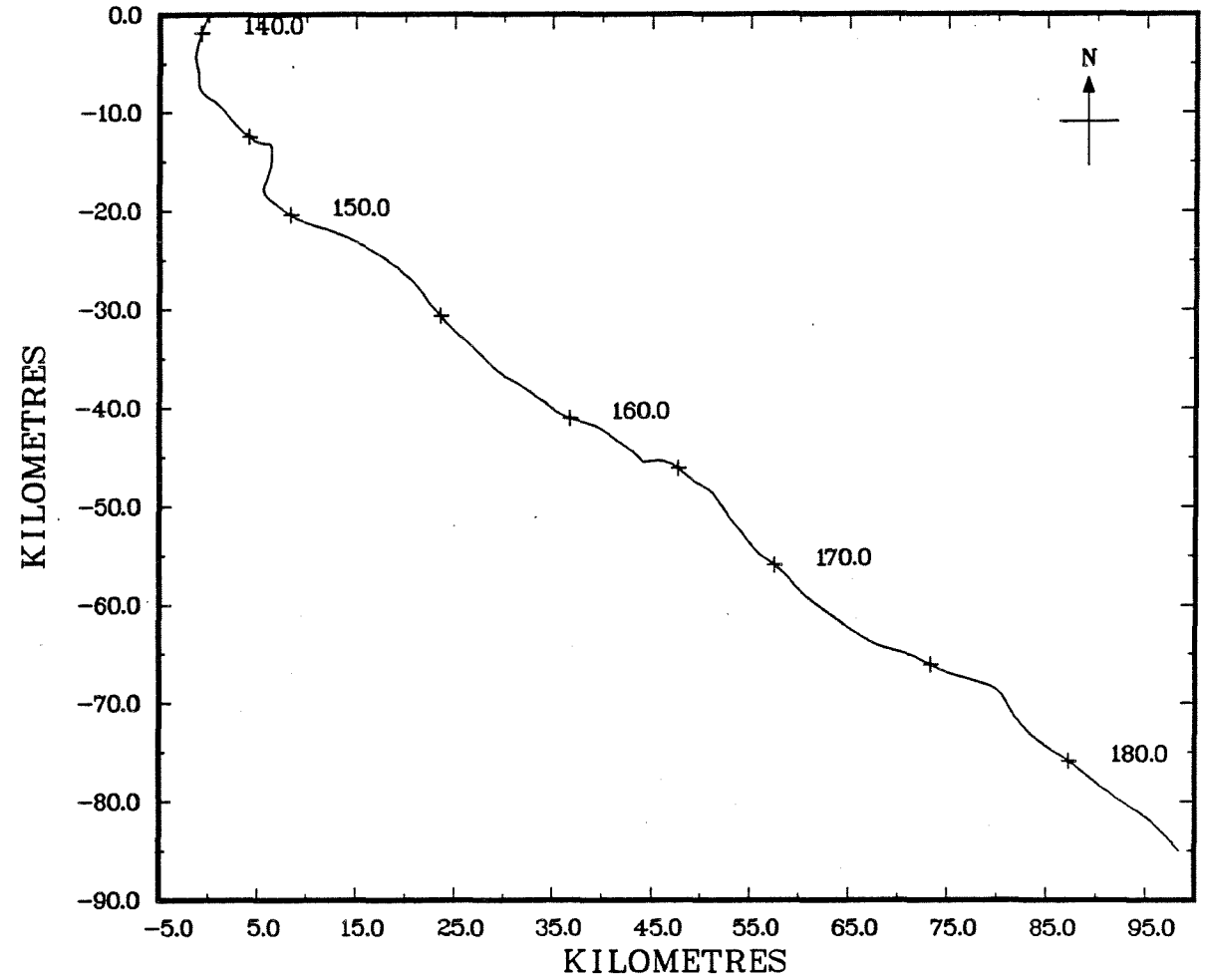

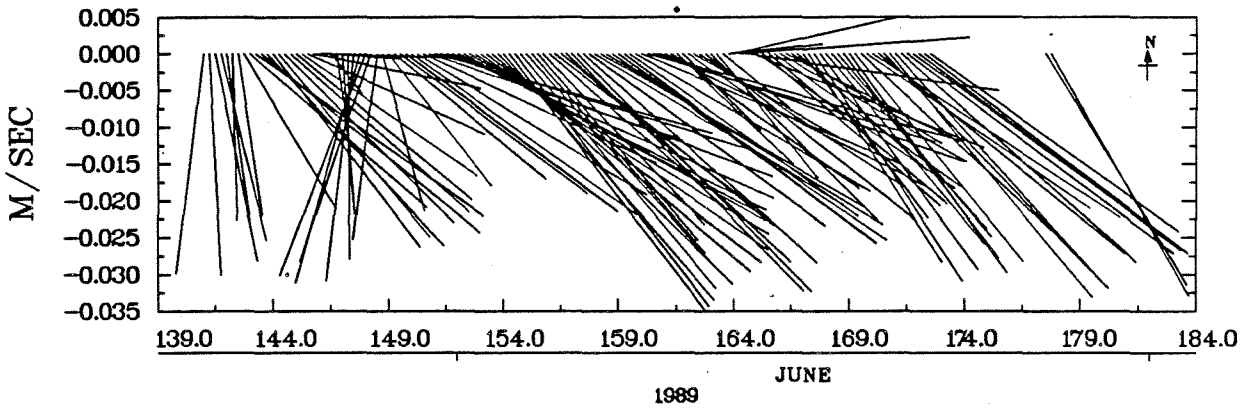

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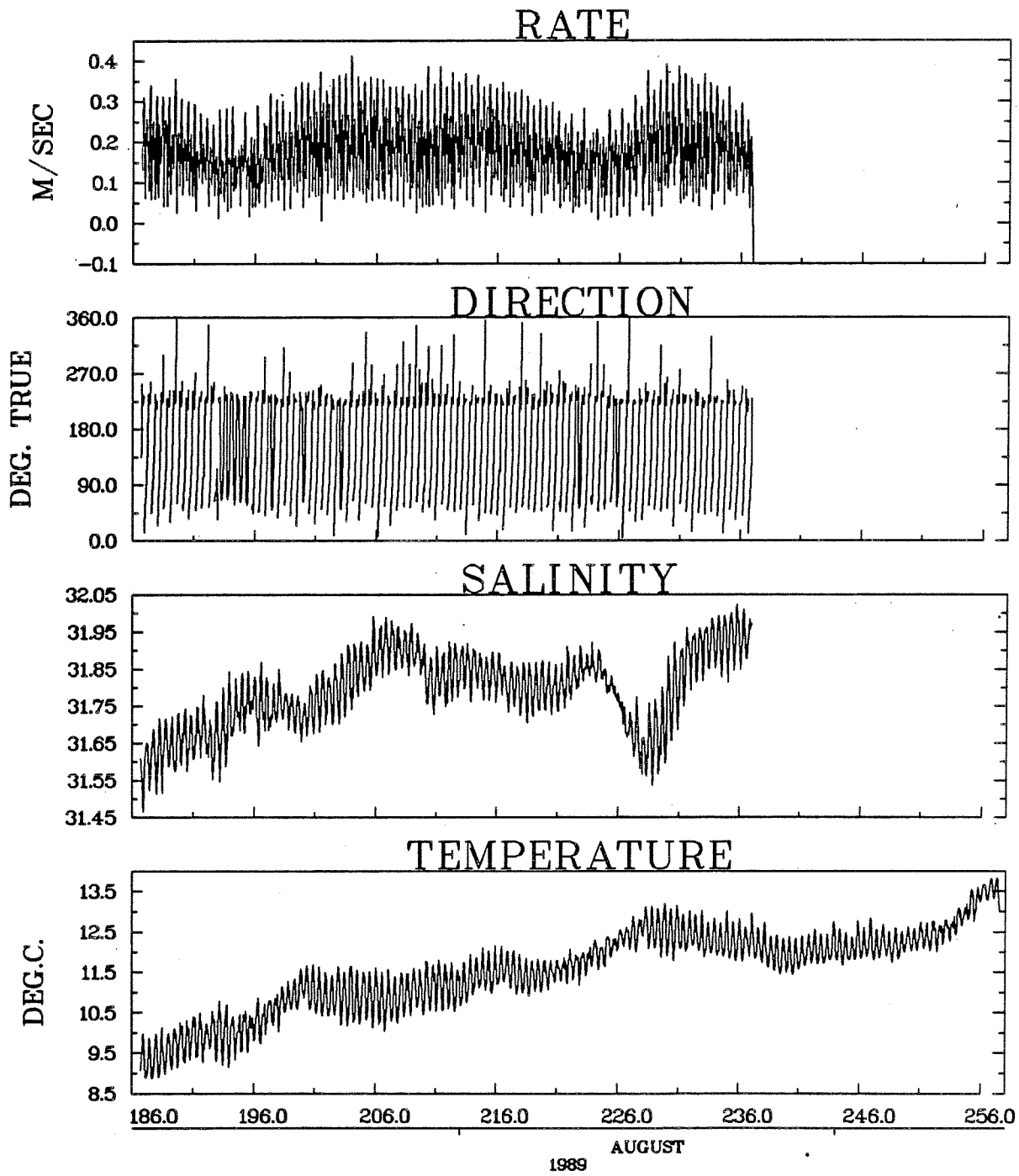

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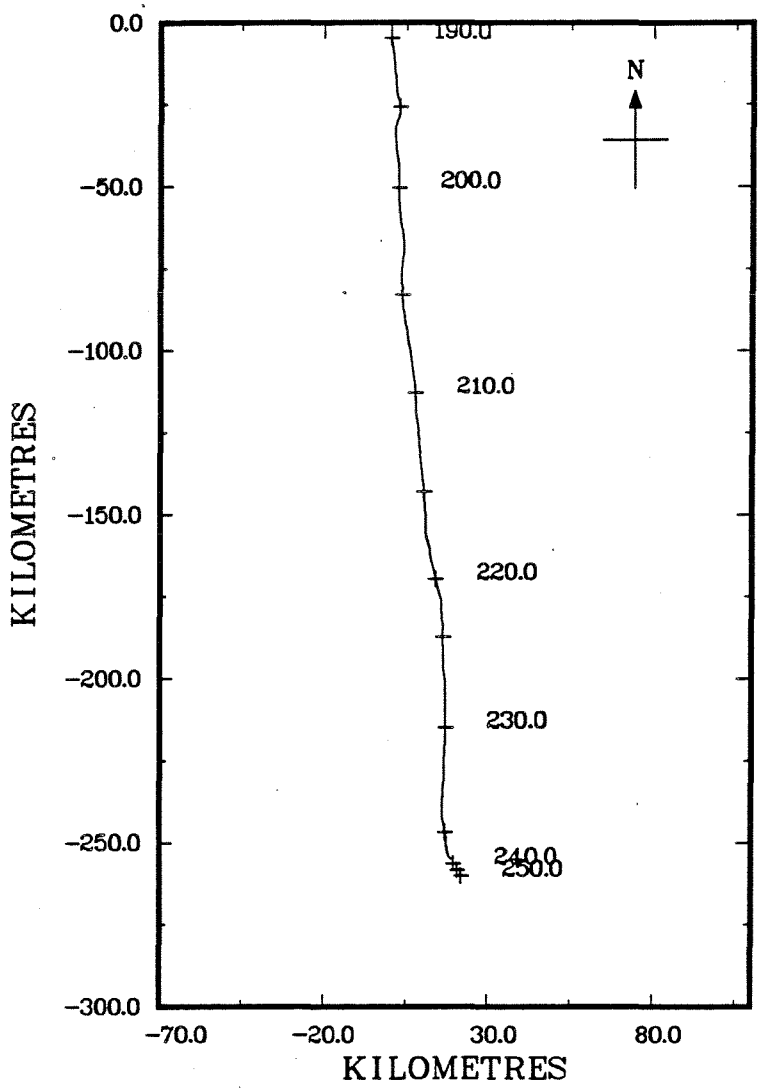

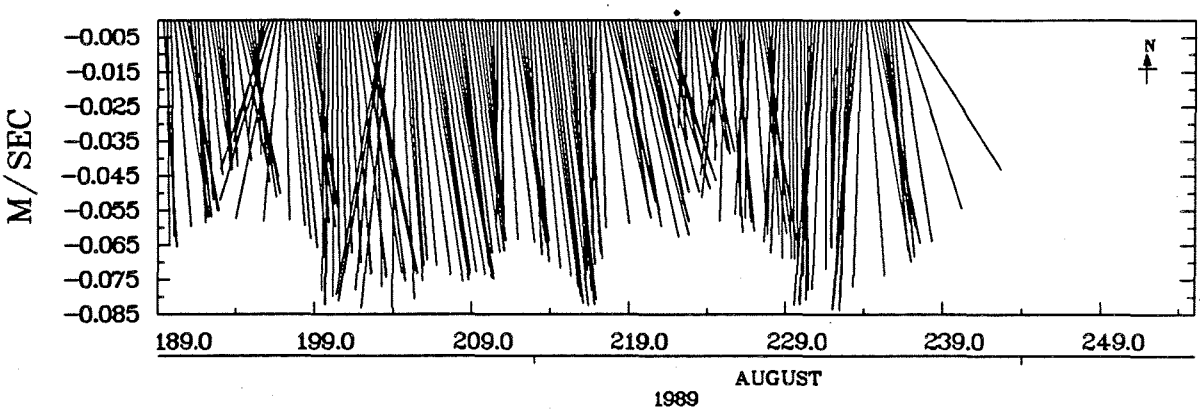

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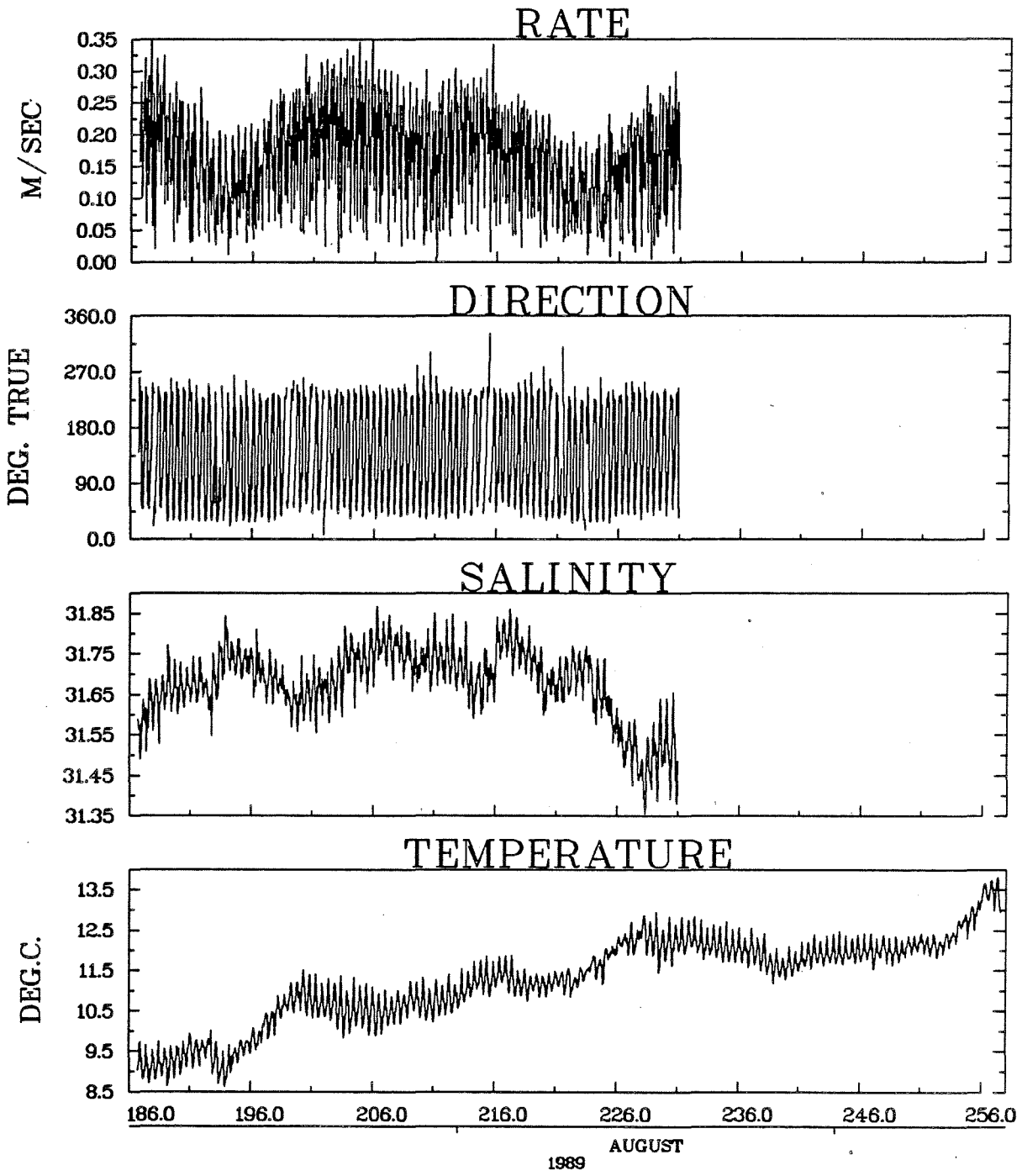

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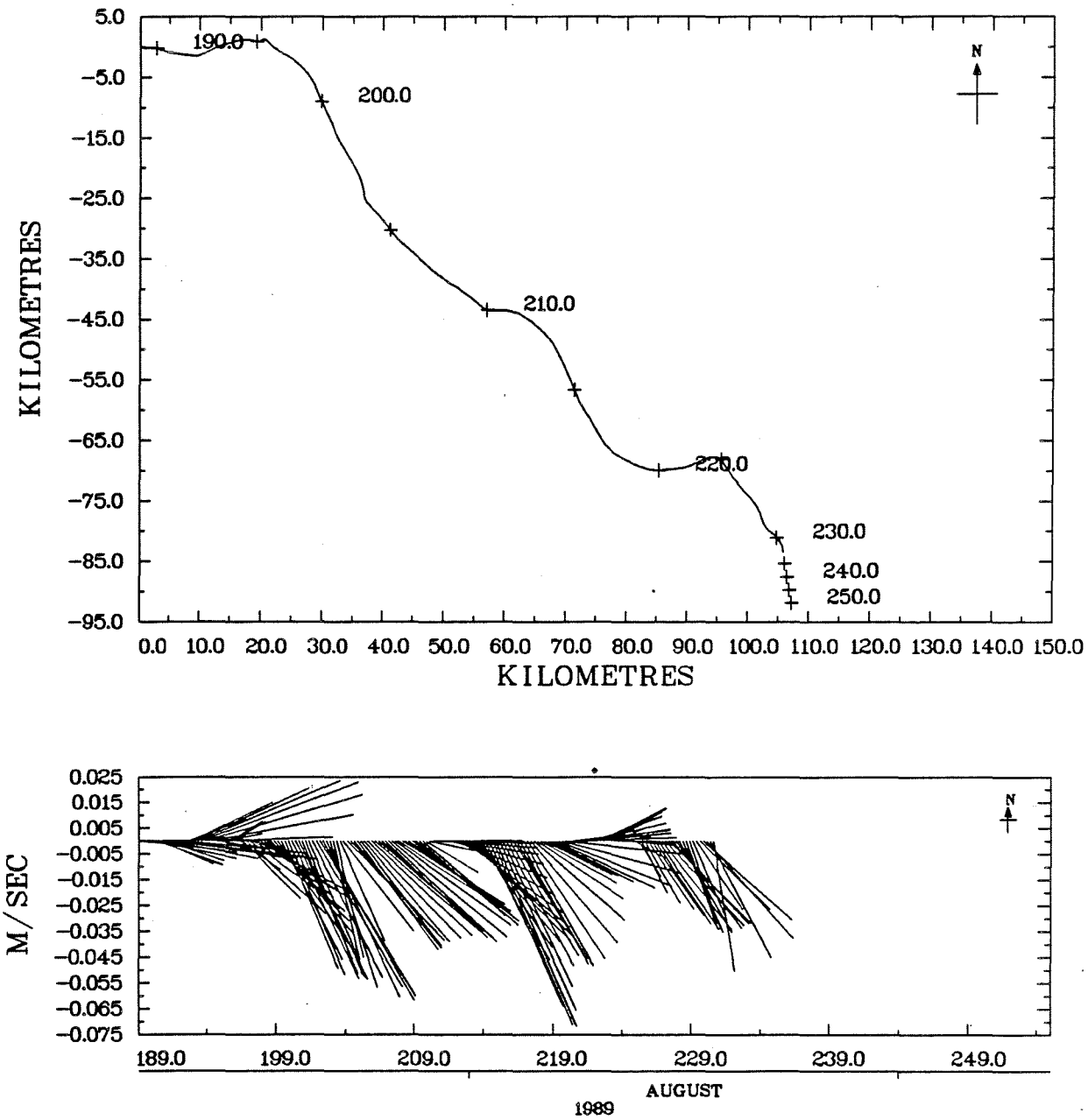

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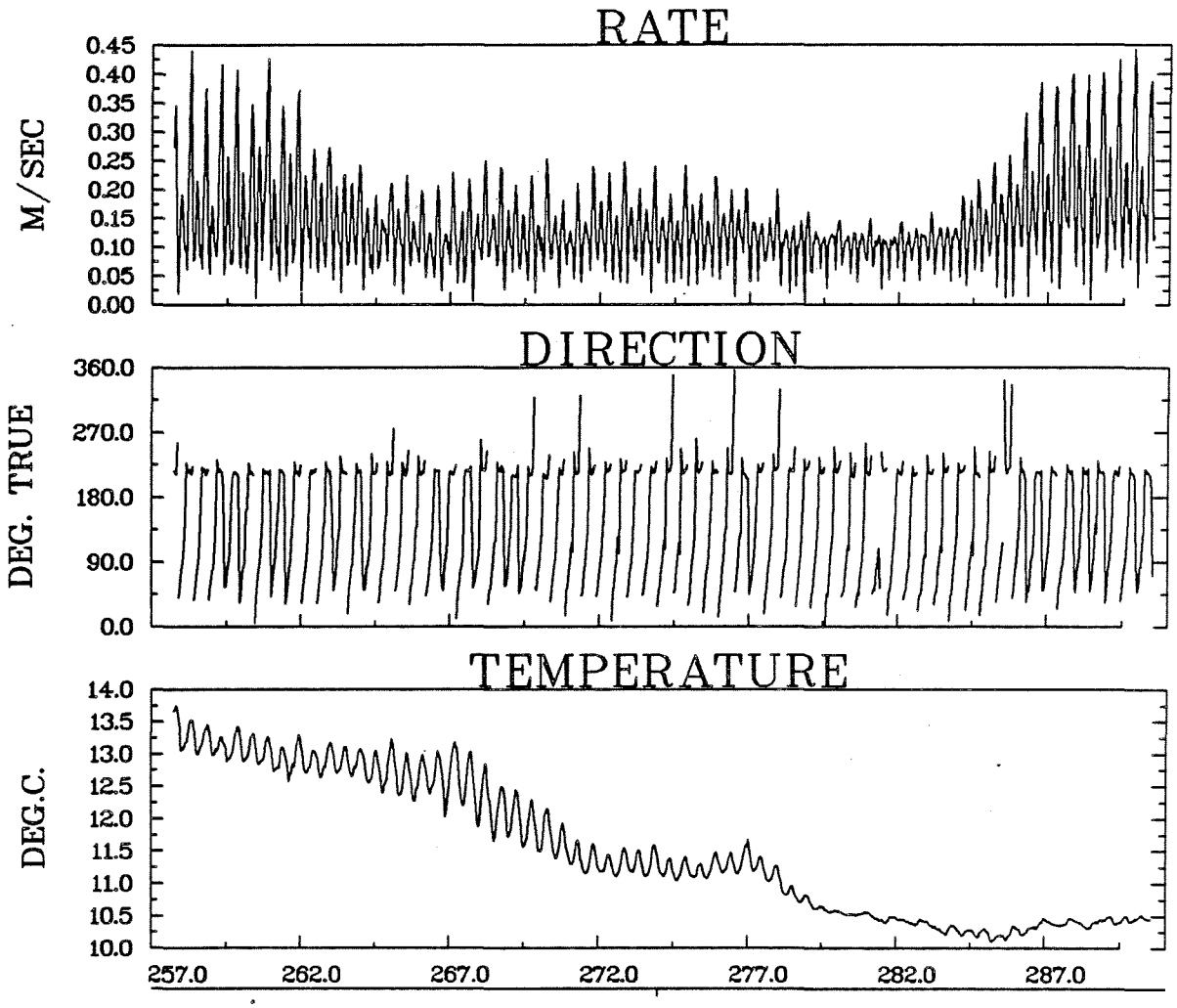

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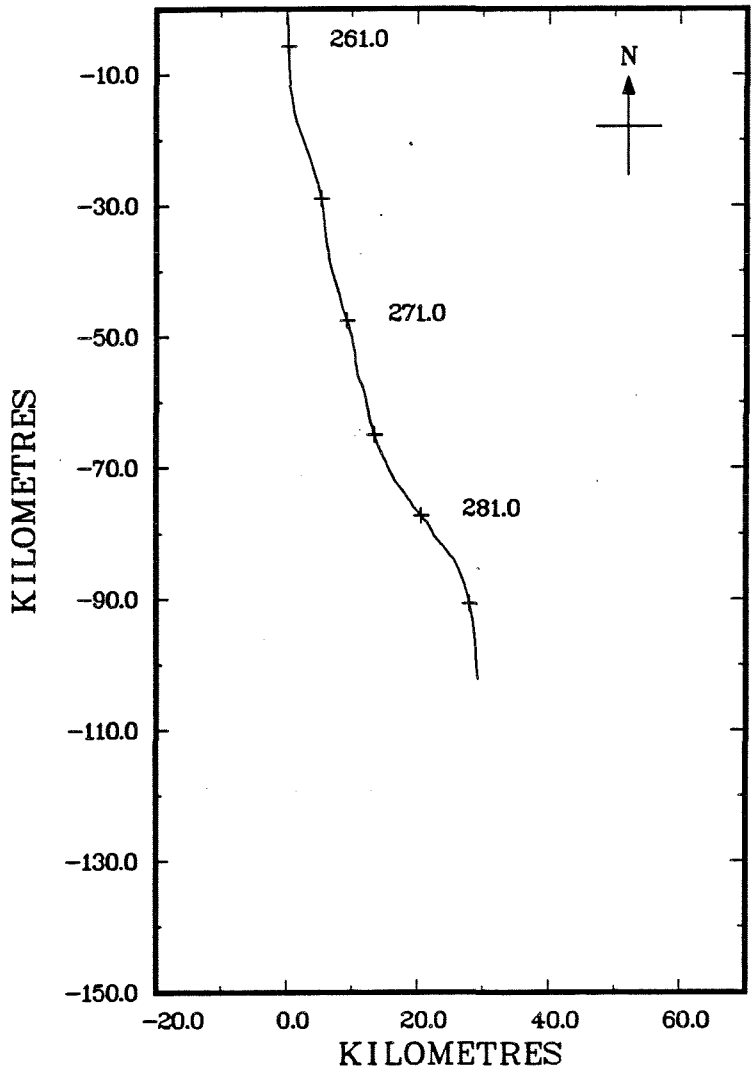

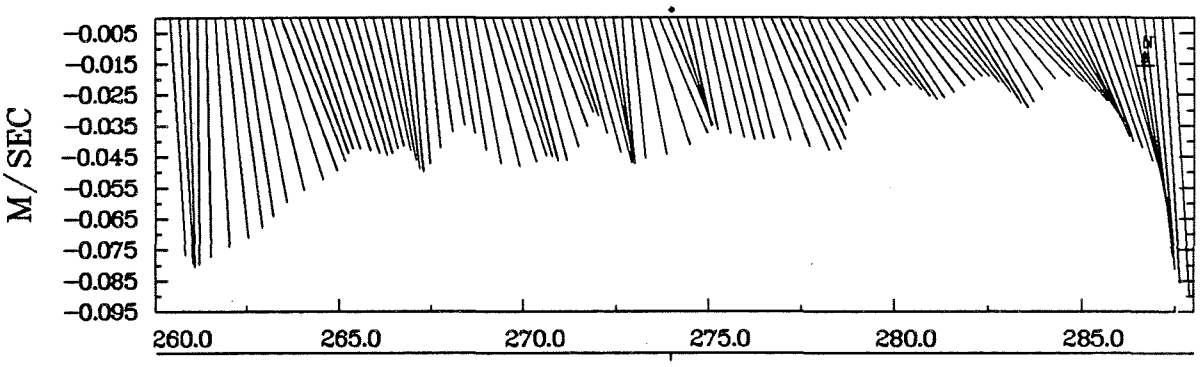

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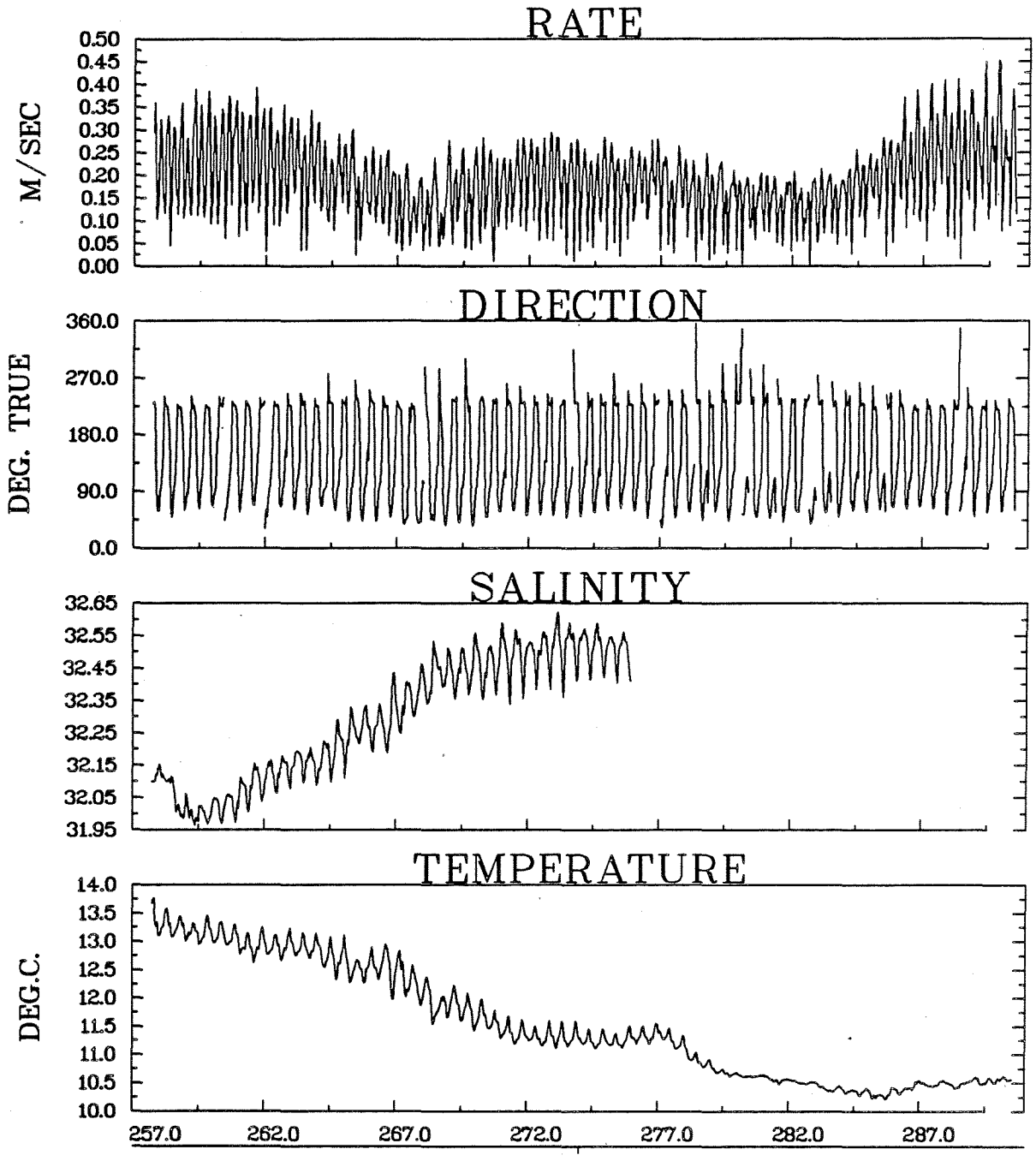

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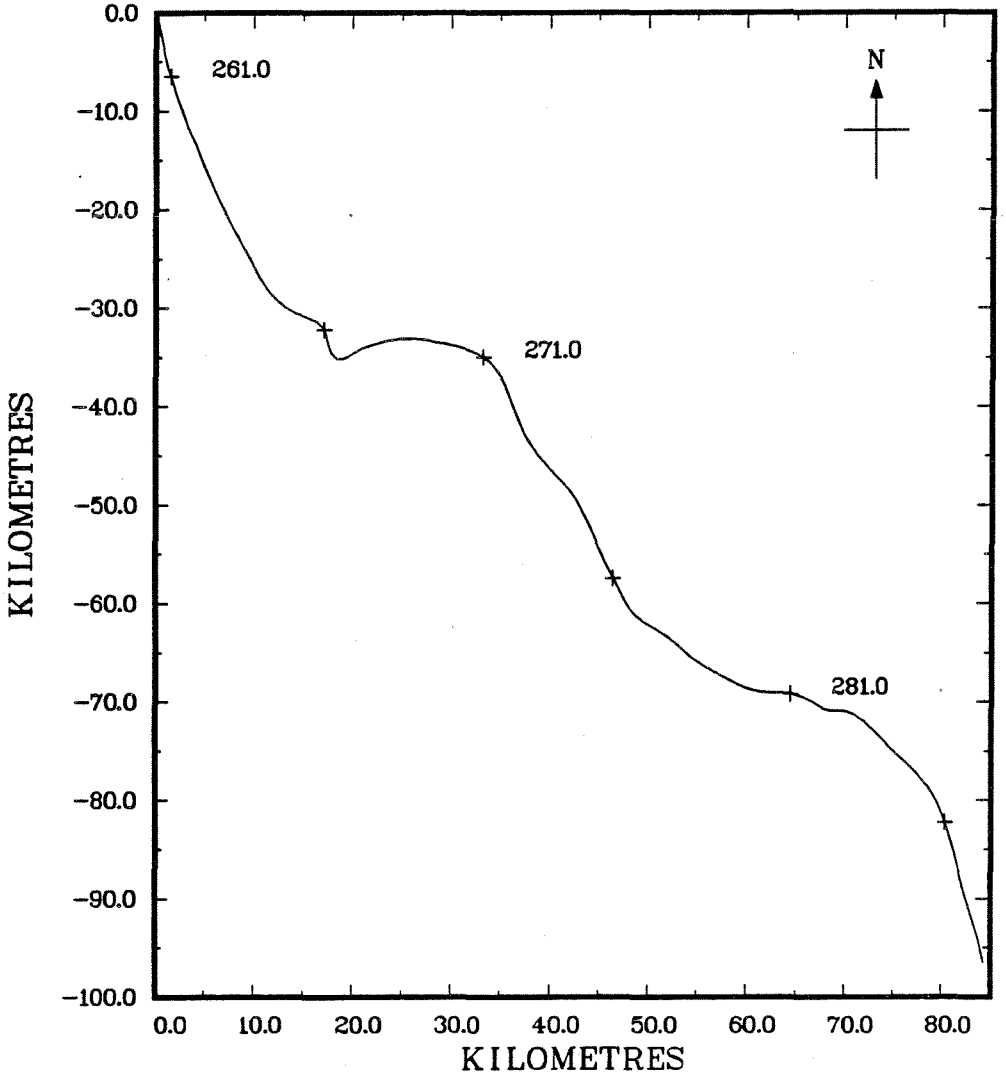

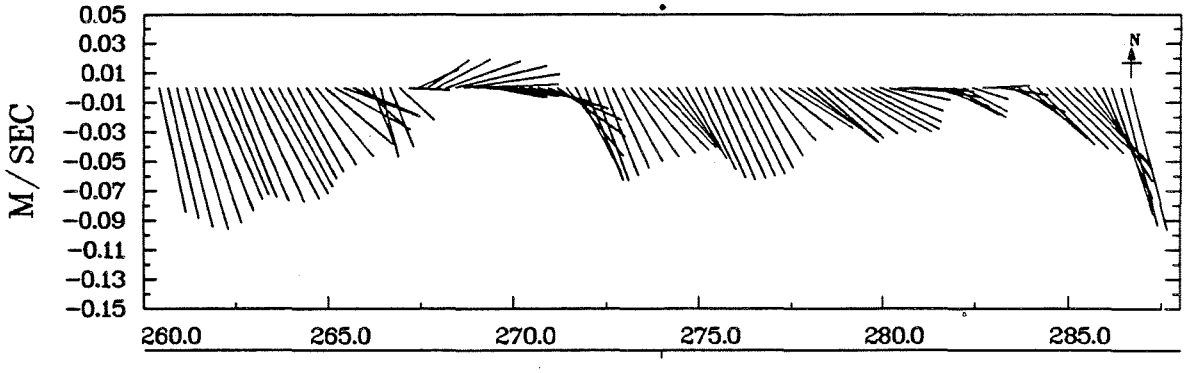

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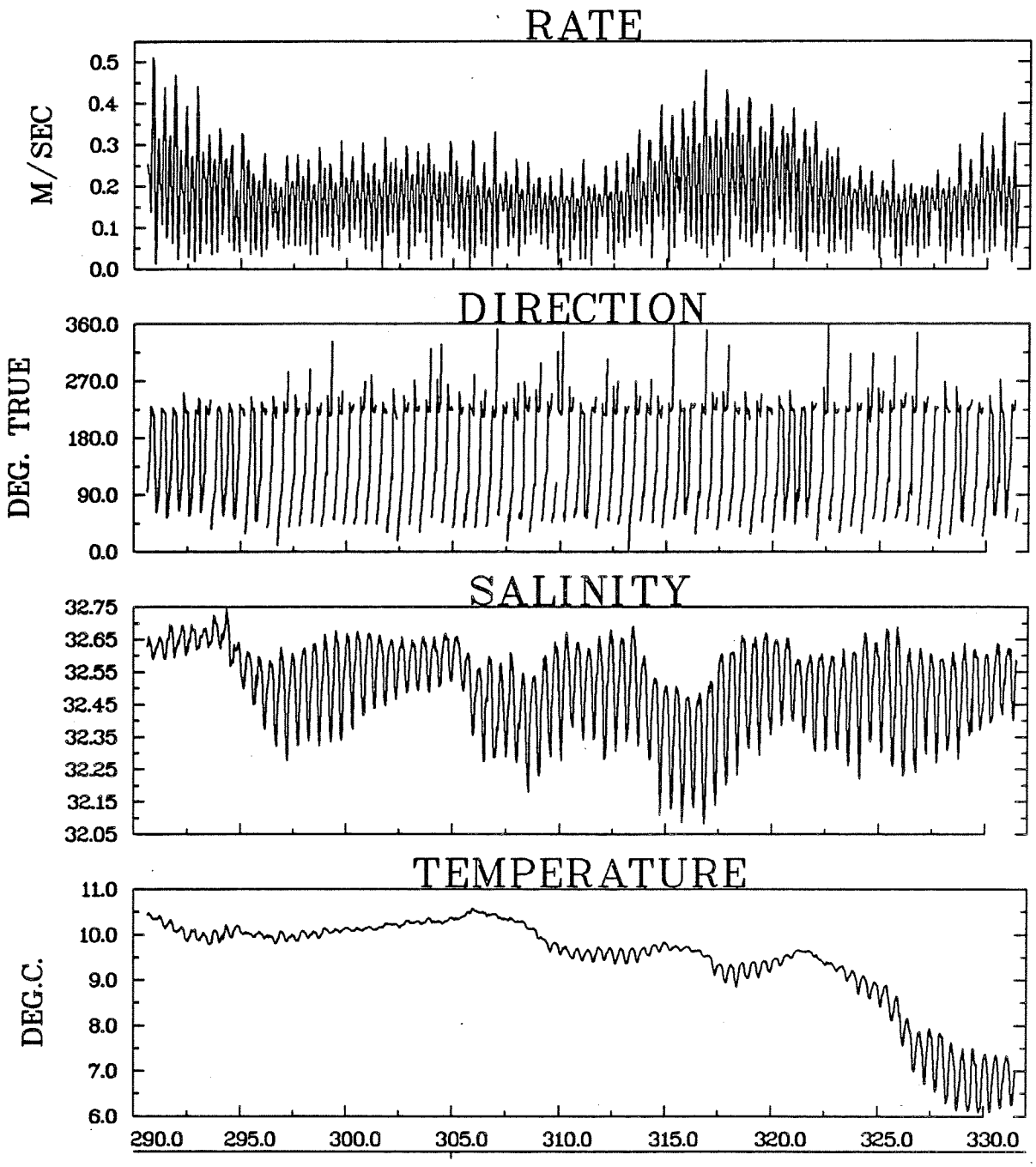

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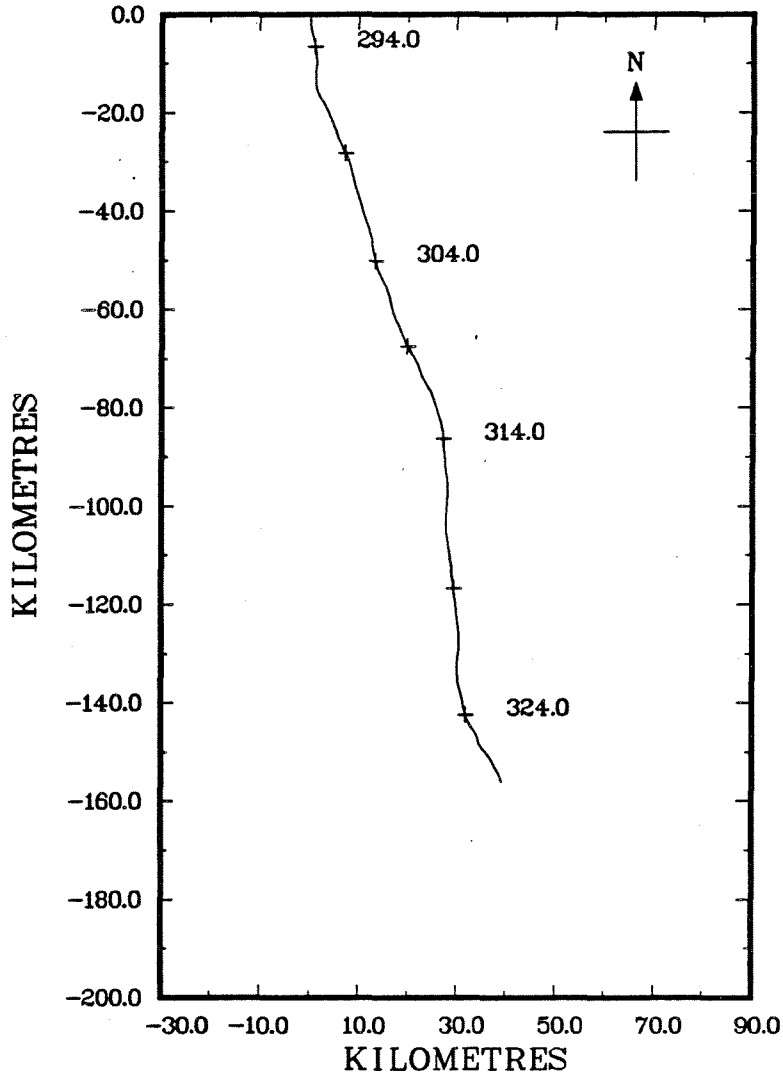

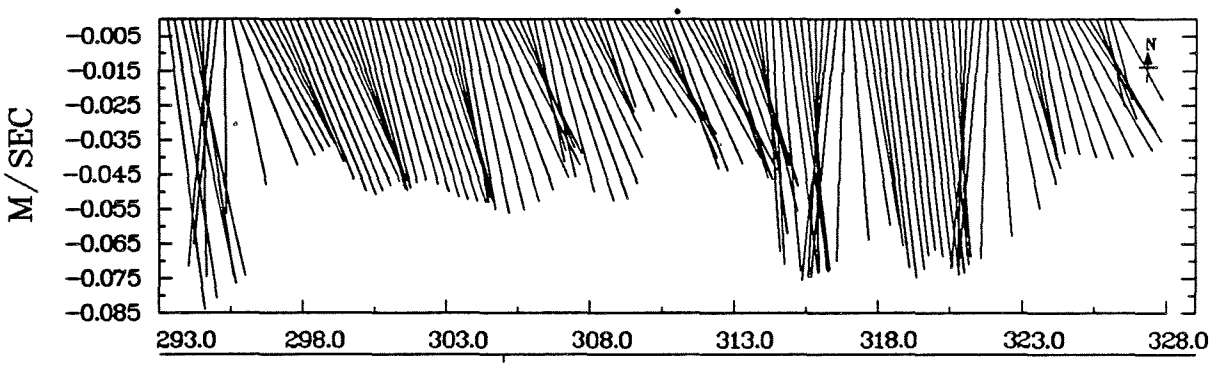

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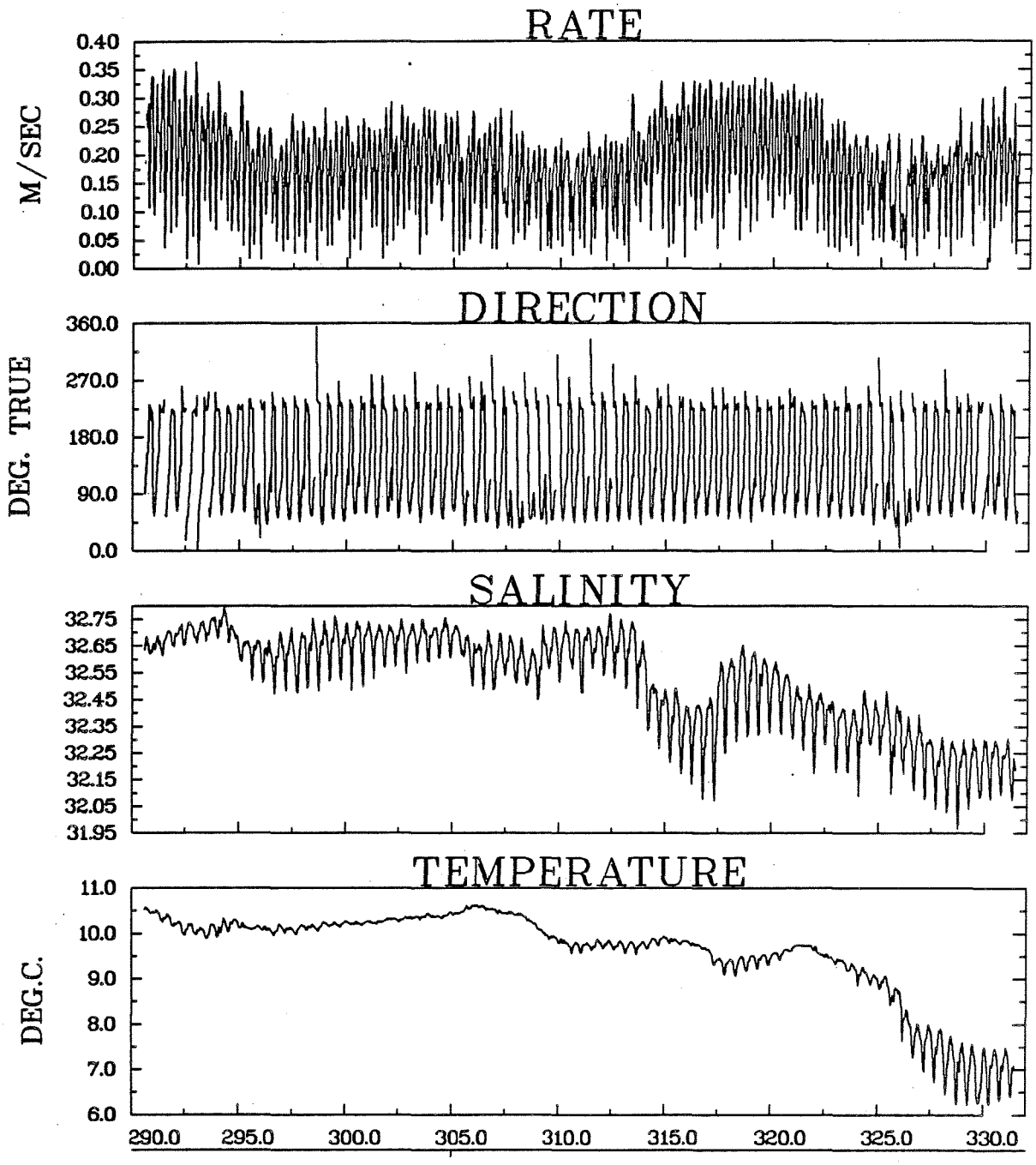
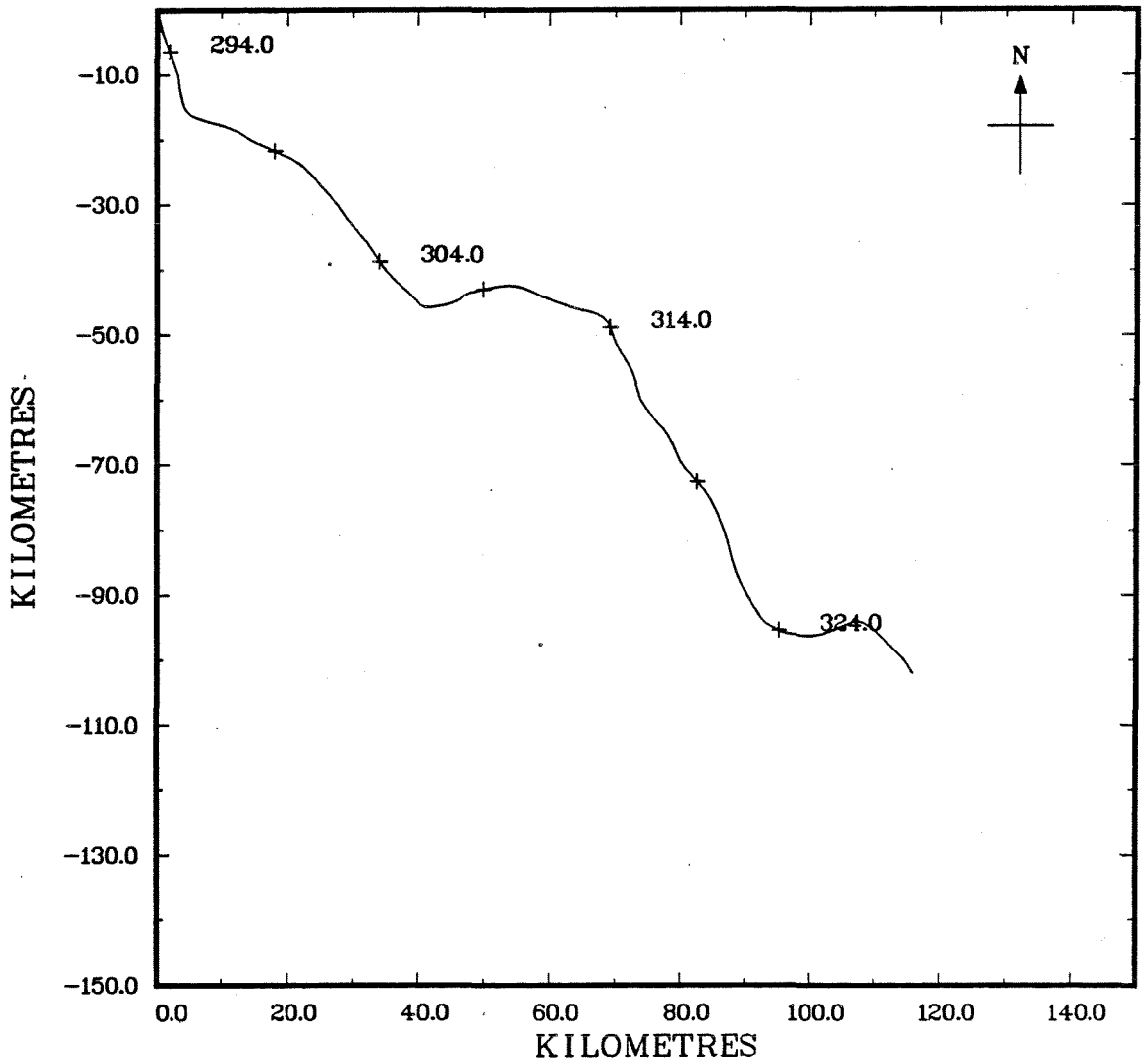
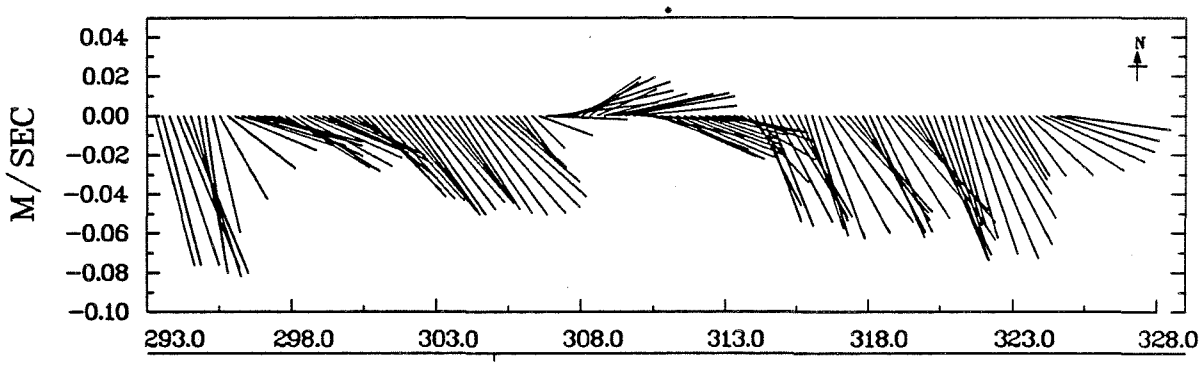


L'ETANG INLET SITE 6 15 M.





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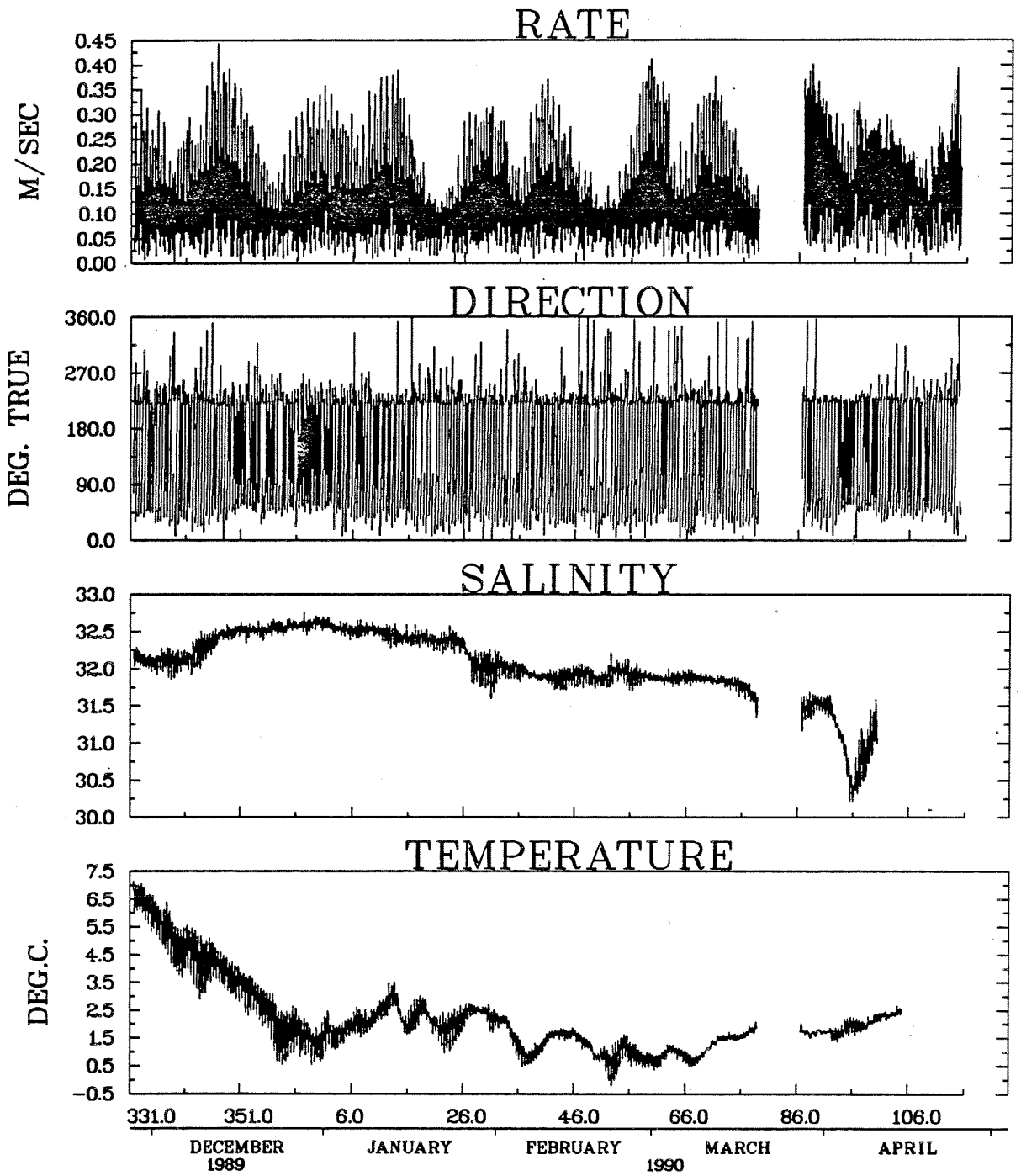

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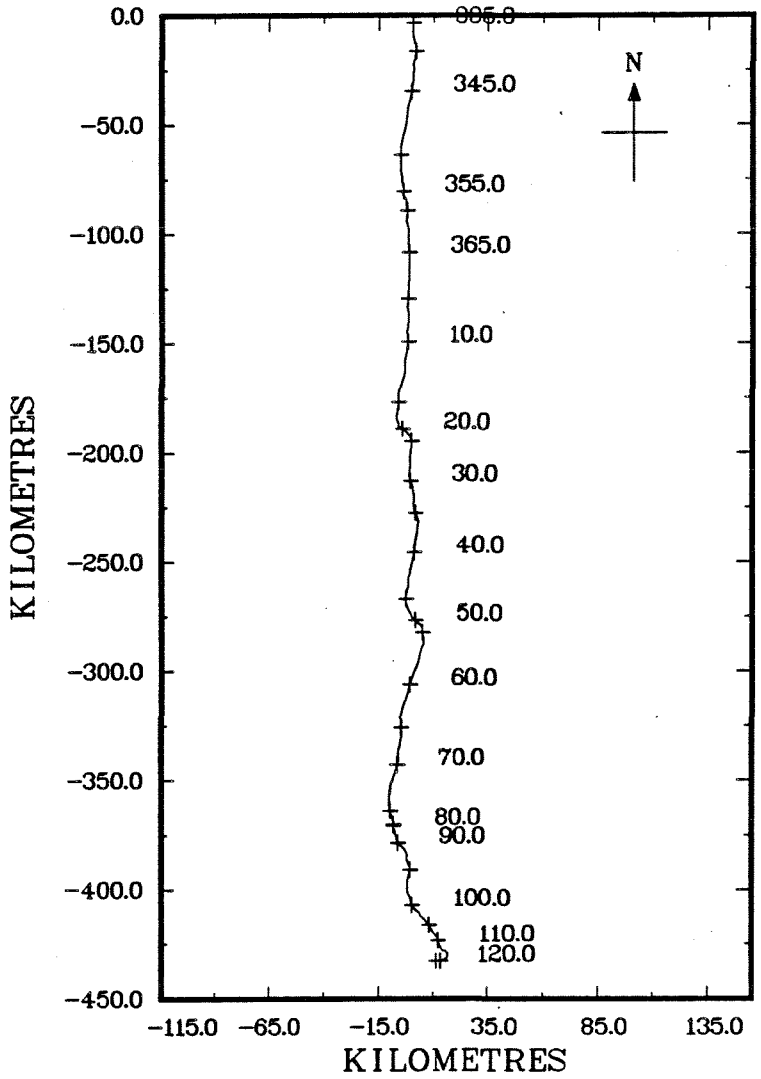

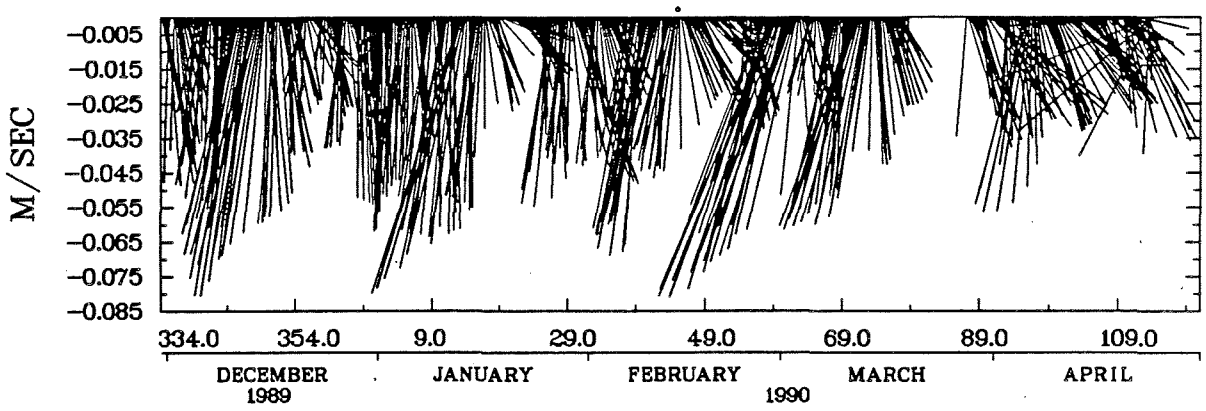

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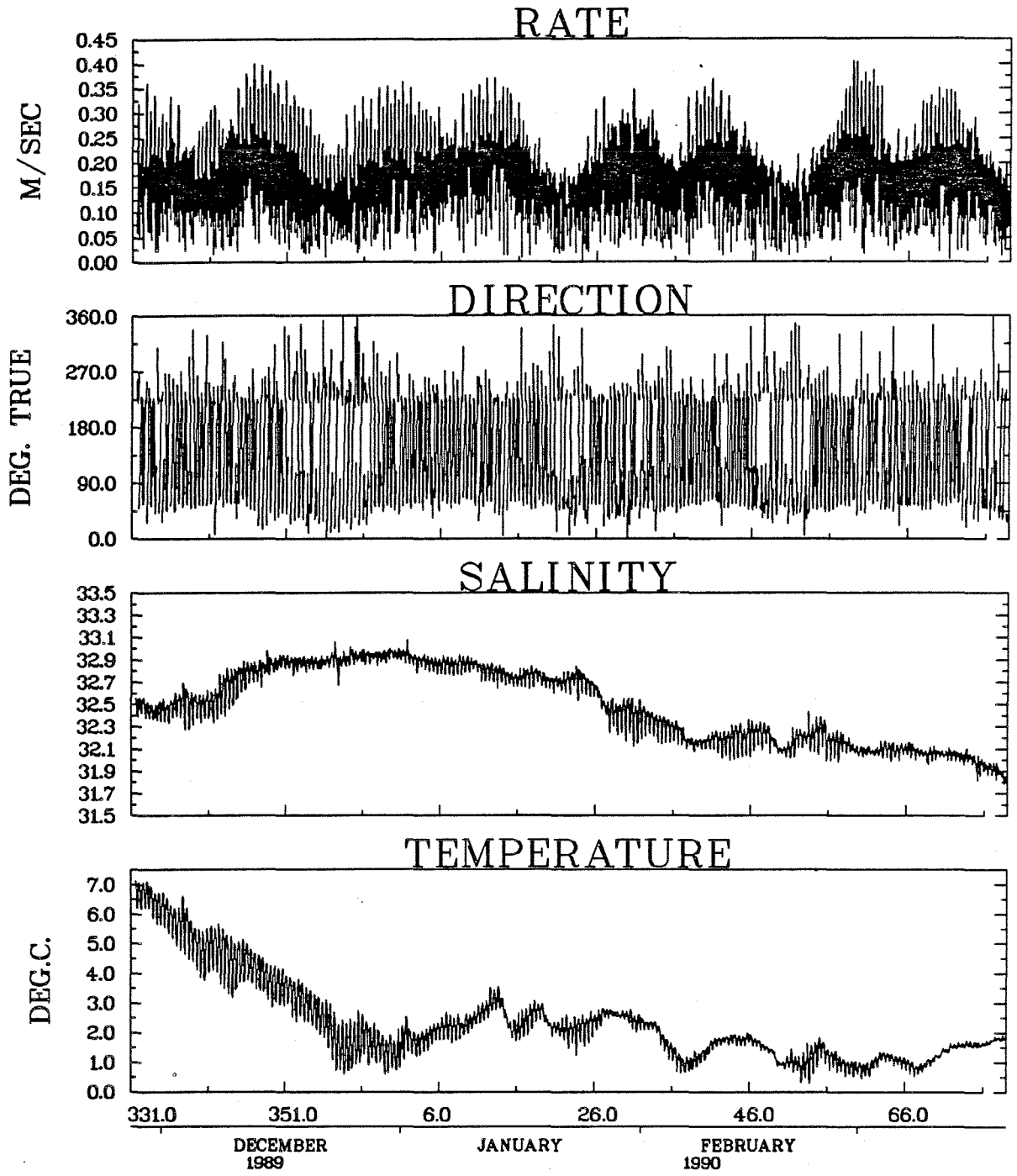

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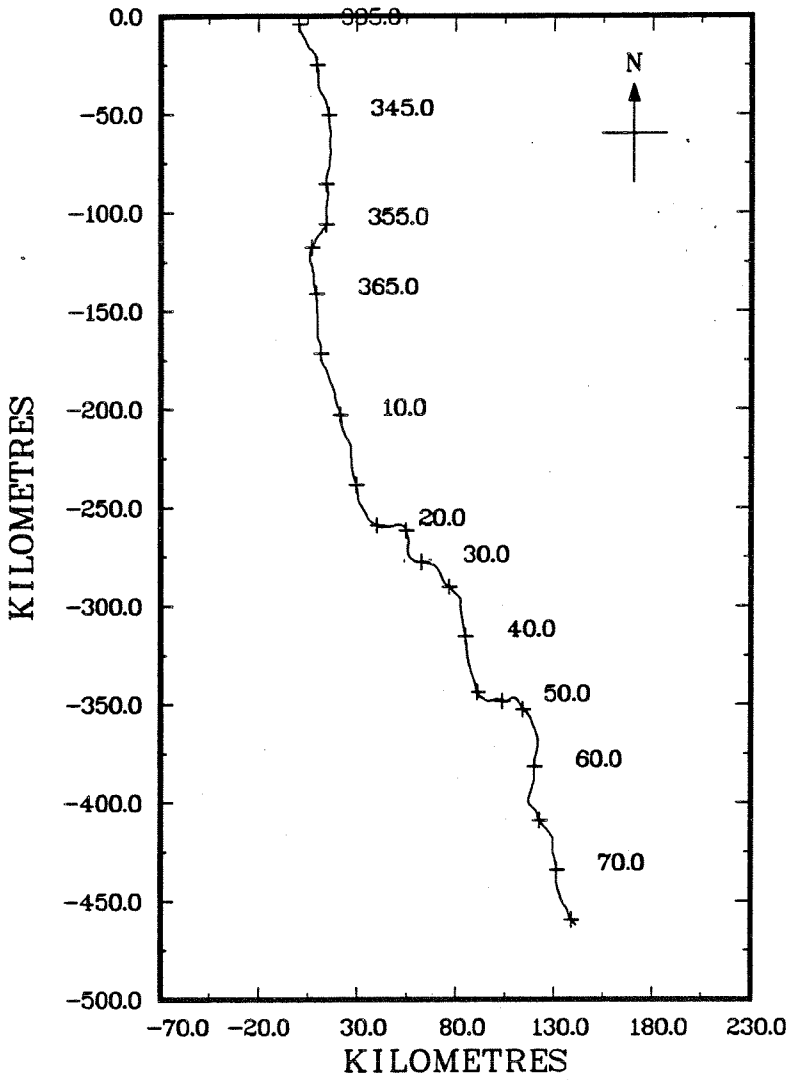

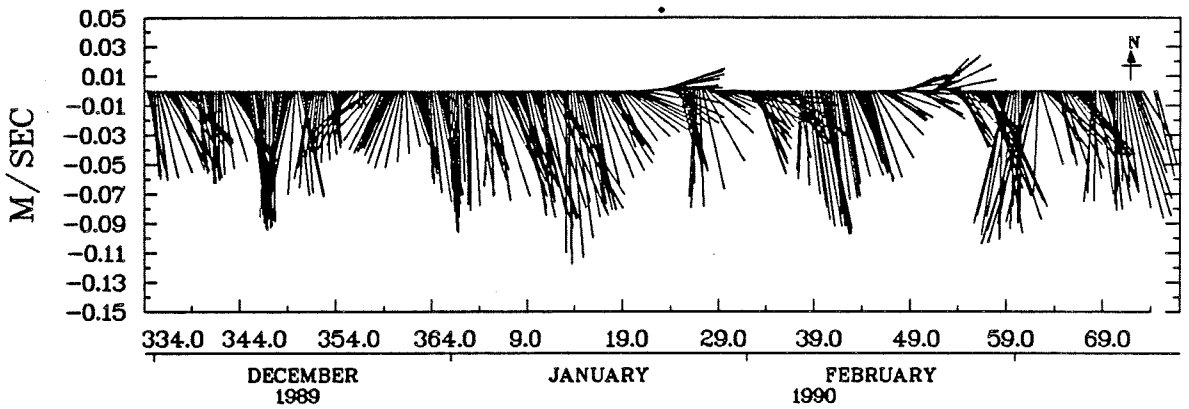

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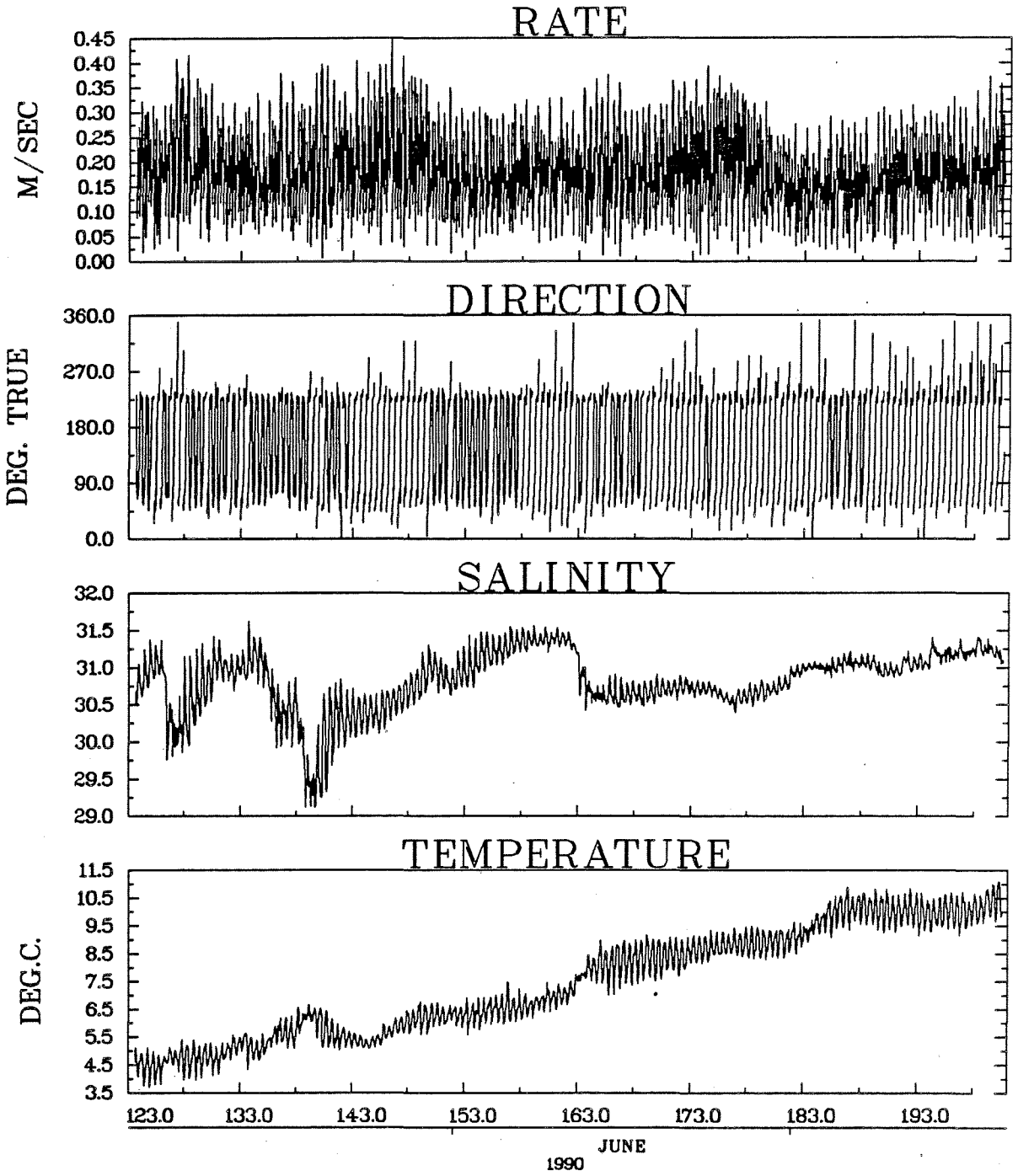

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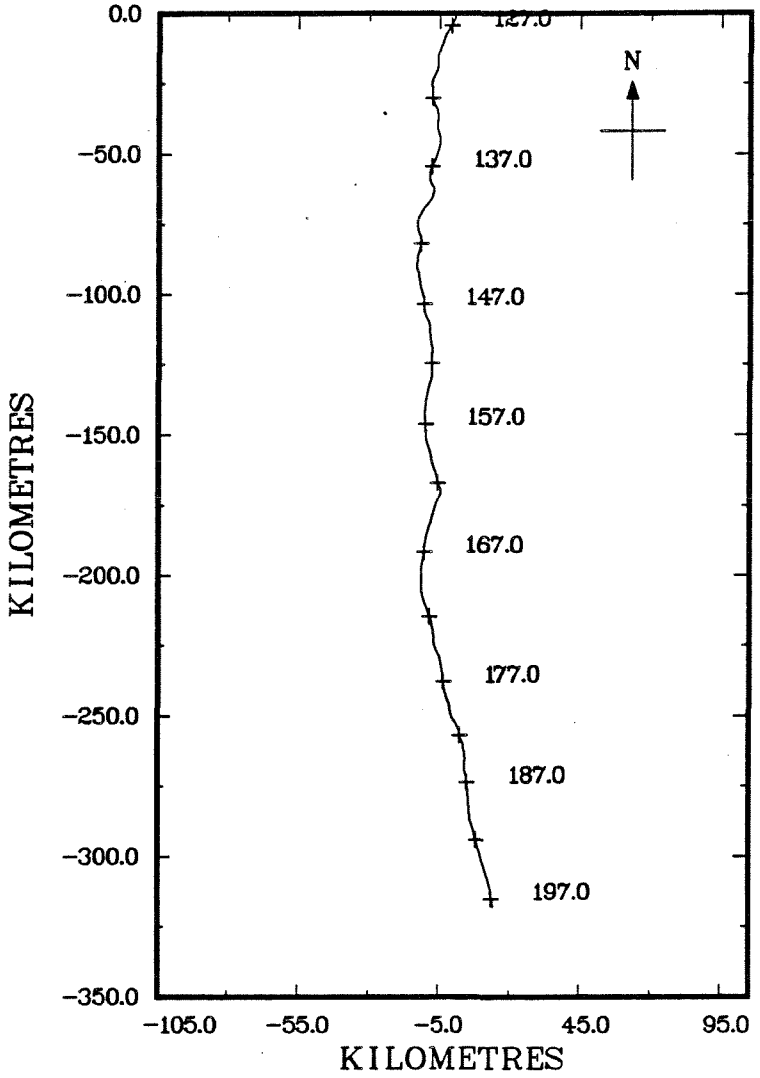

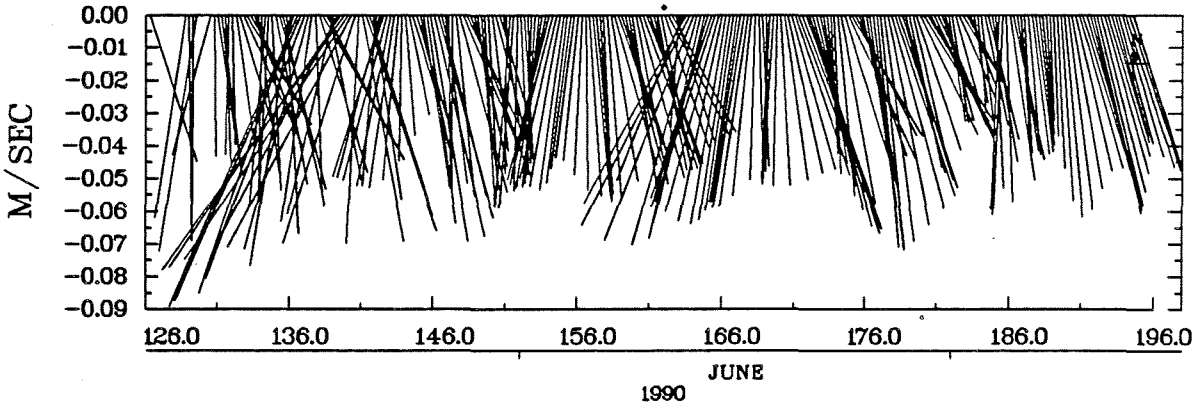

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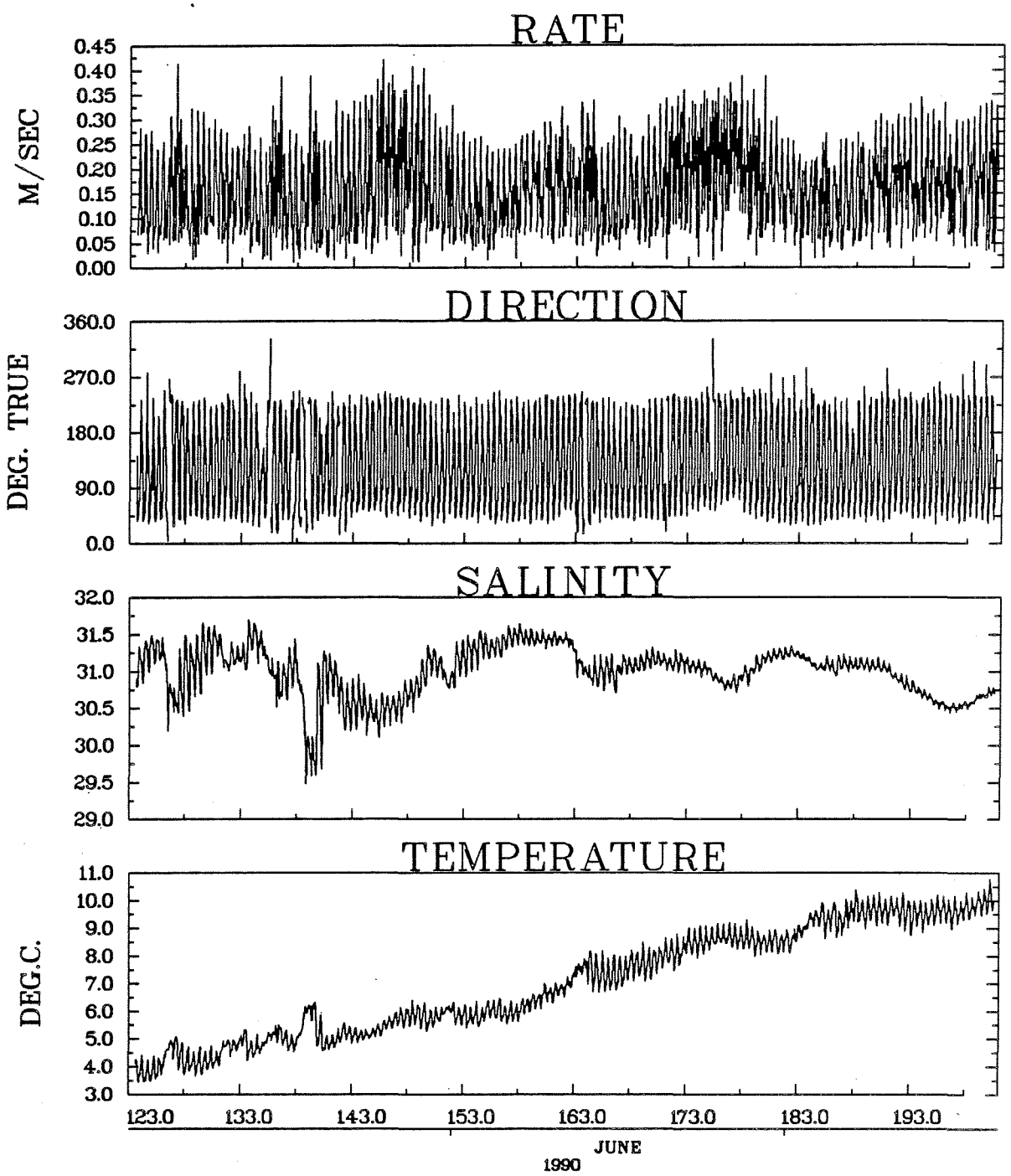

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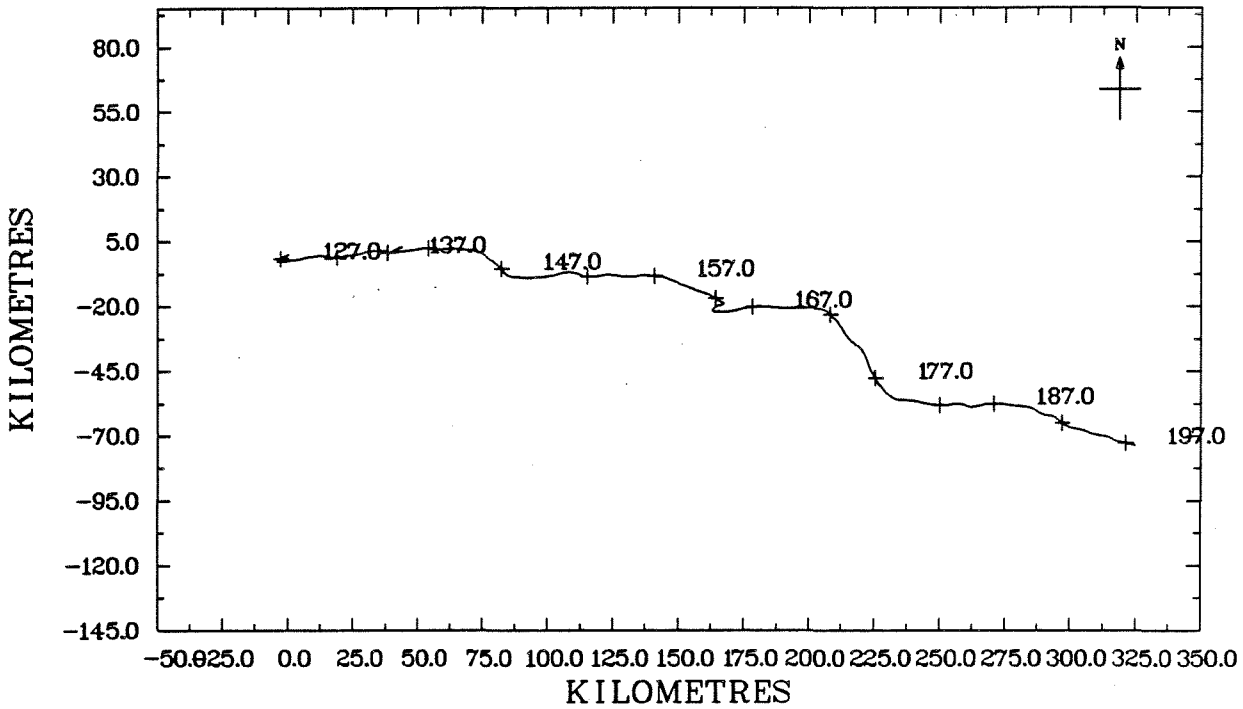

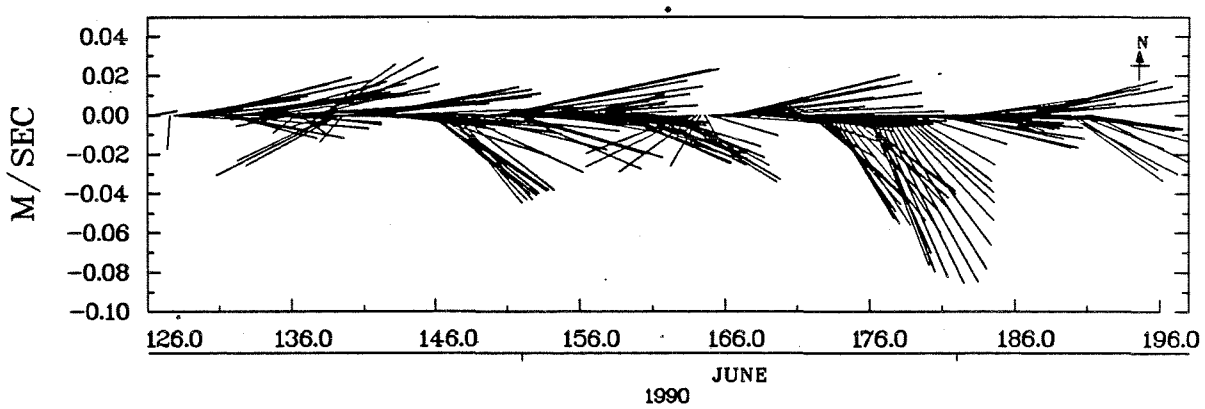

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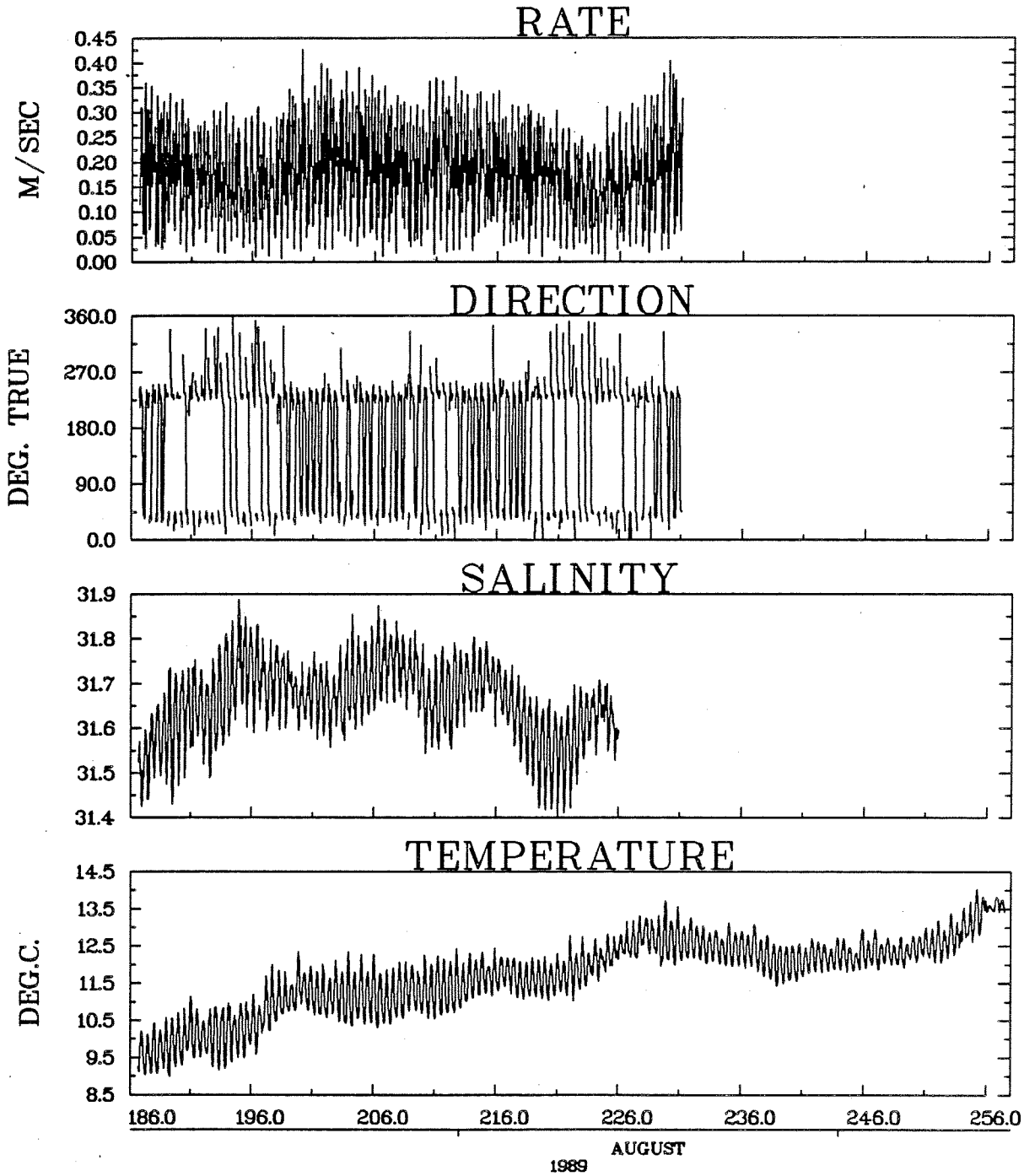

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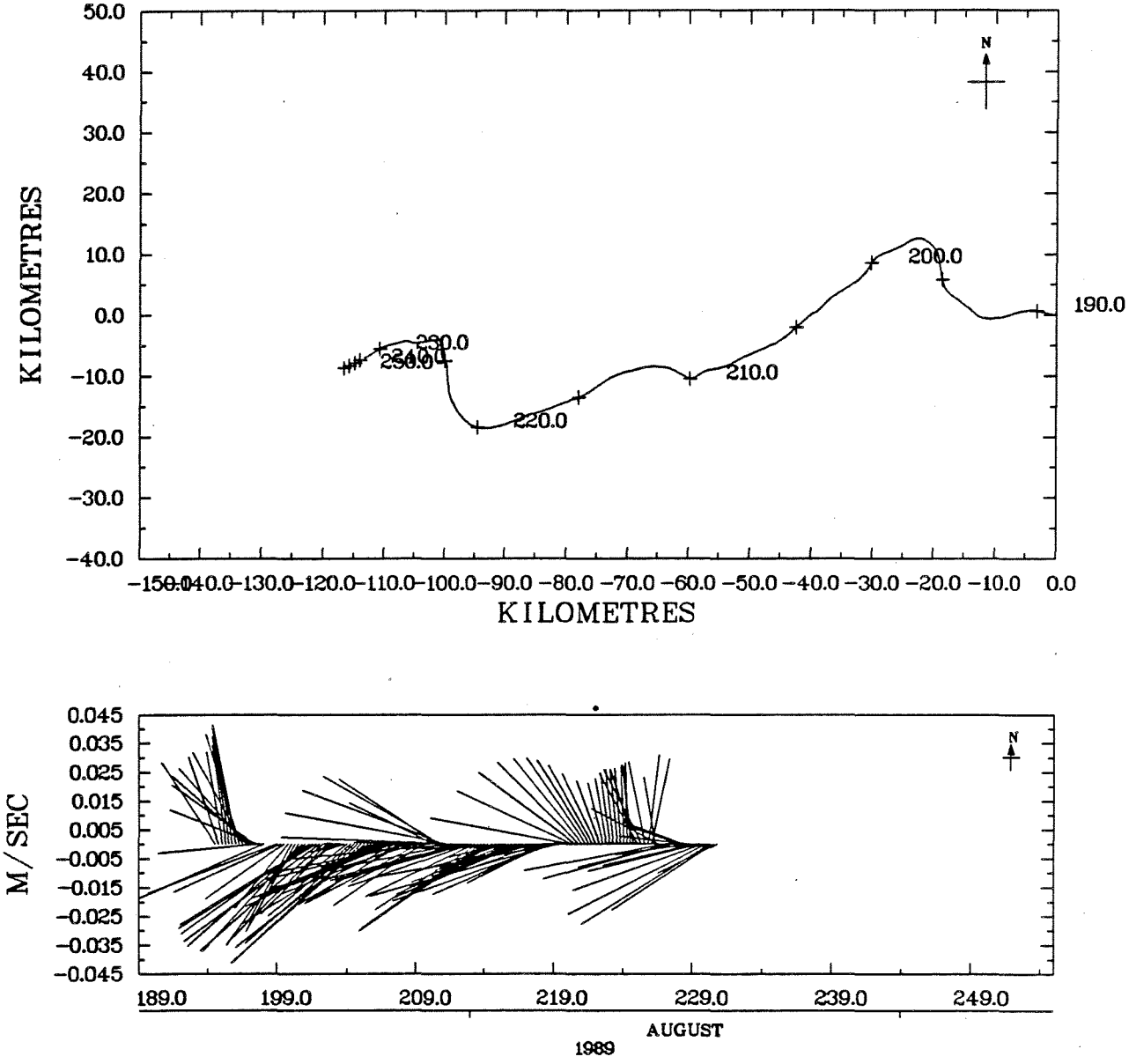

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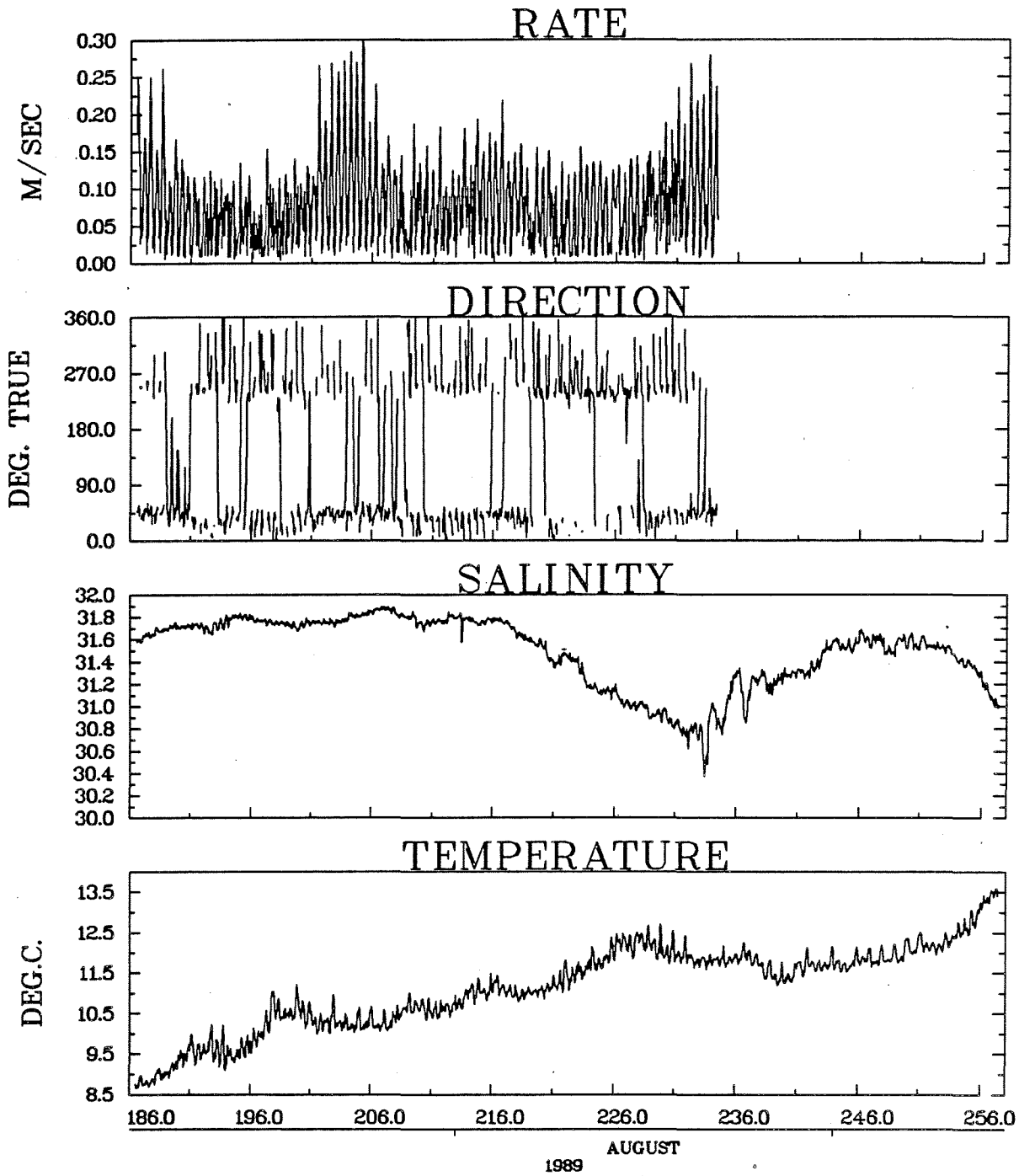

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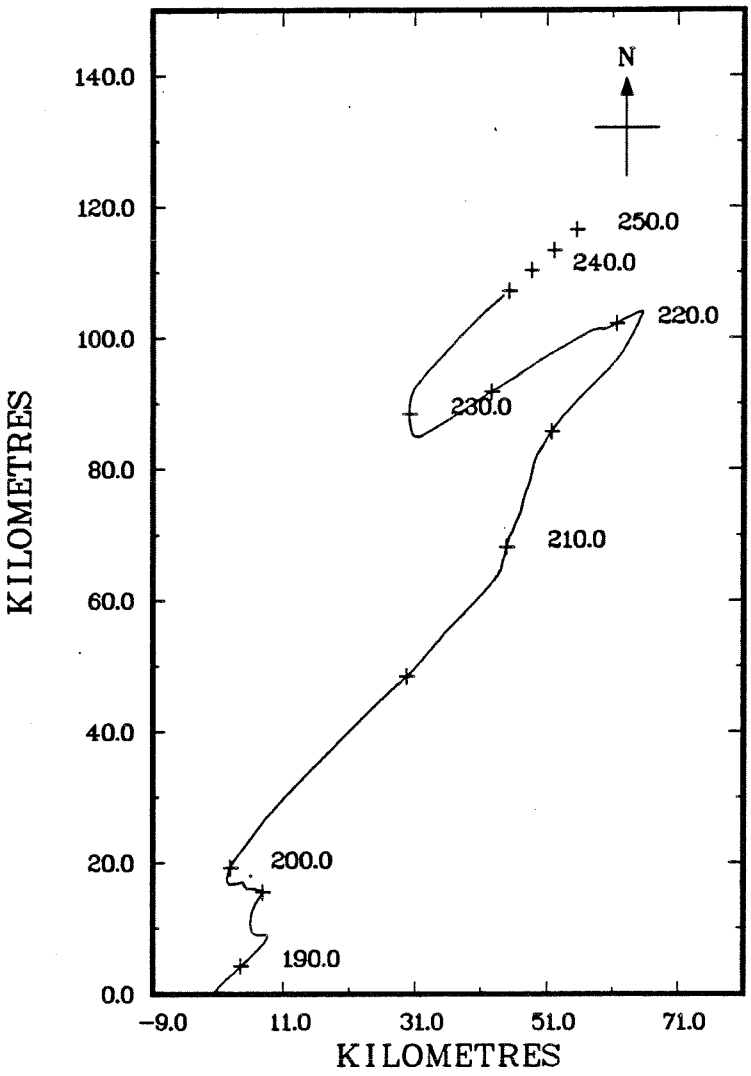

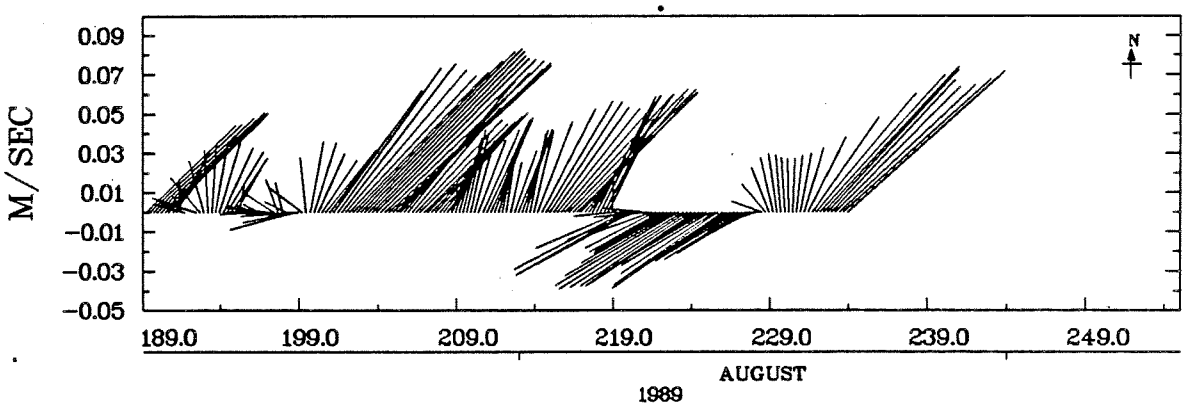

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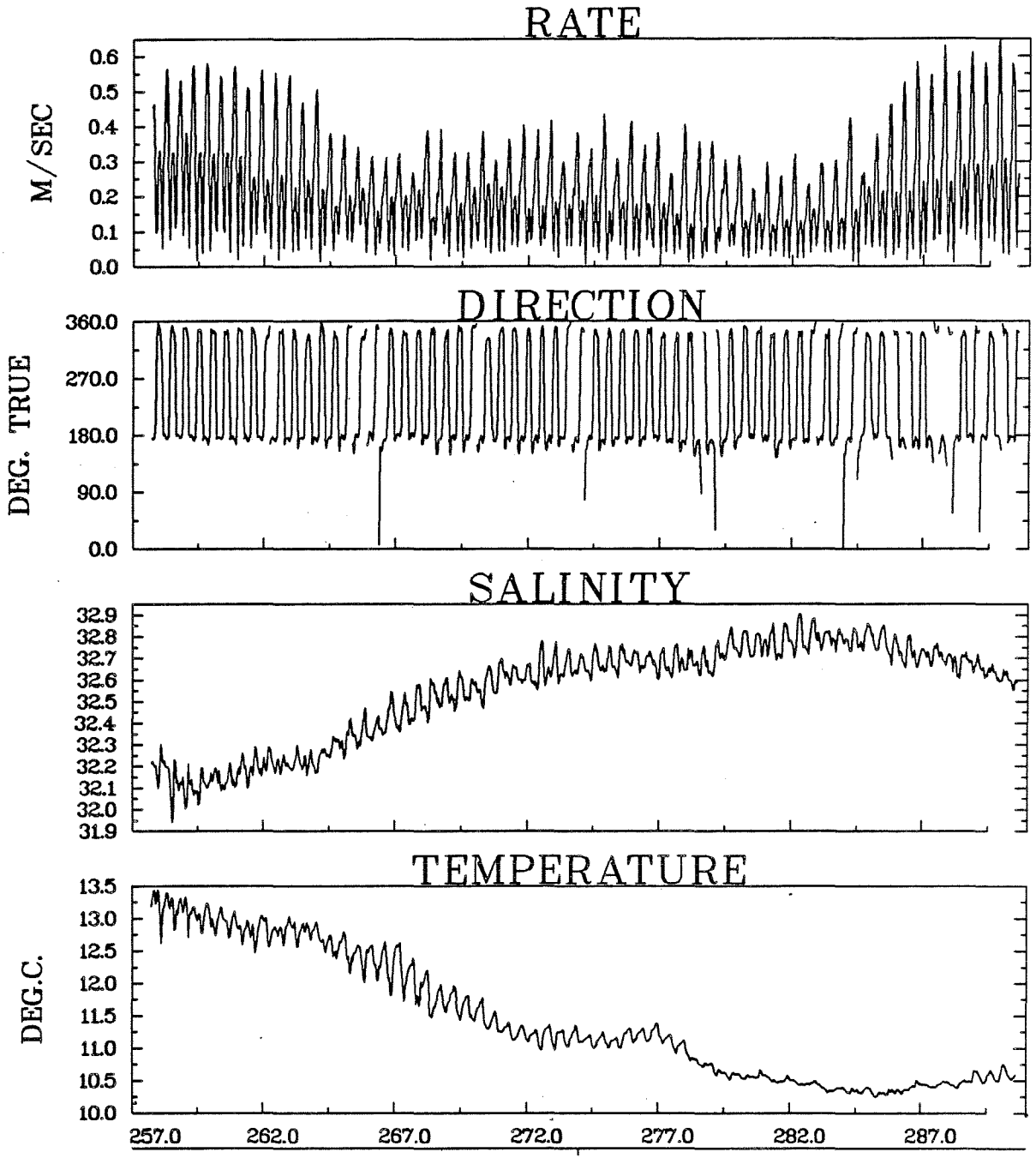

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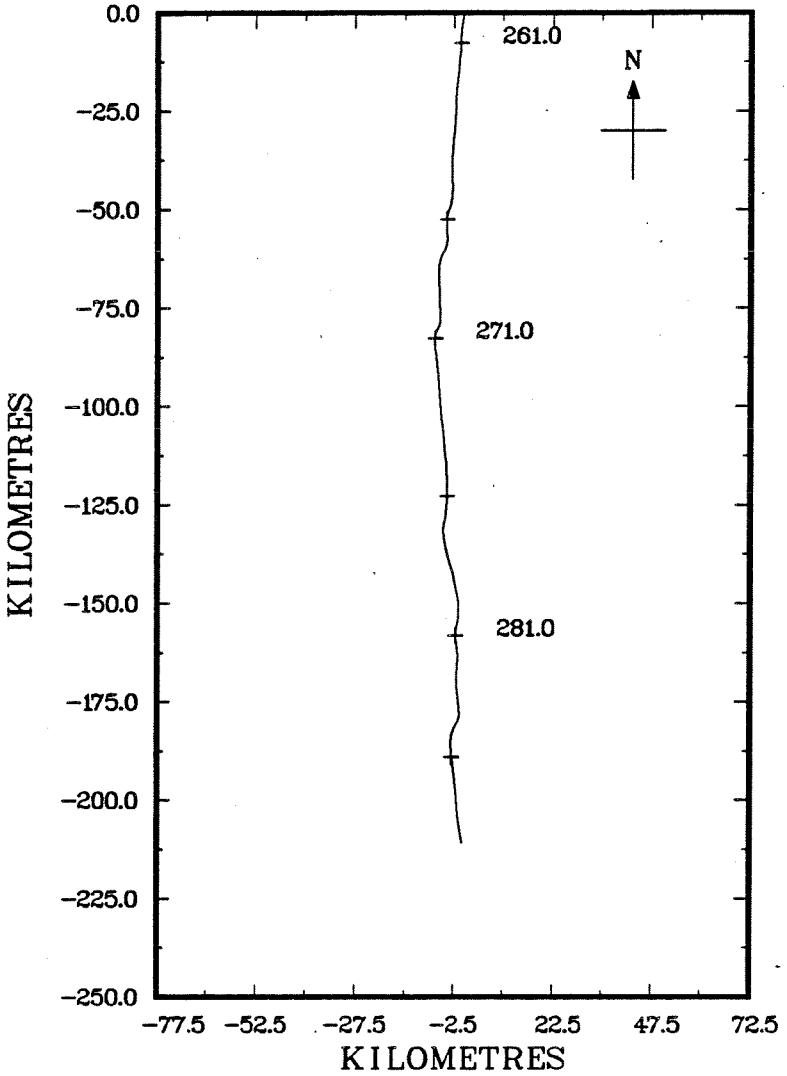

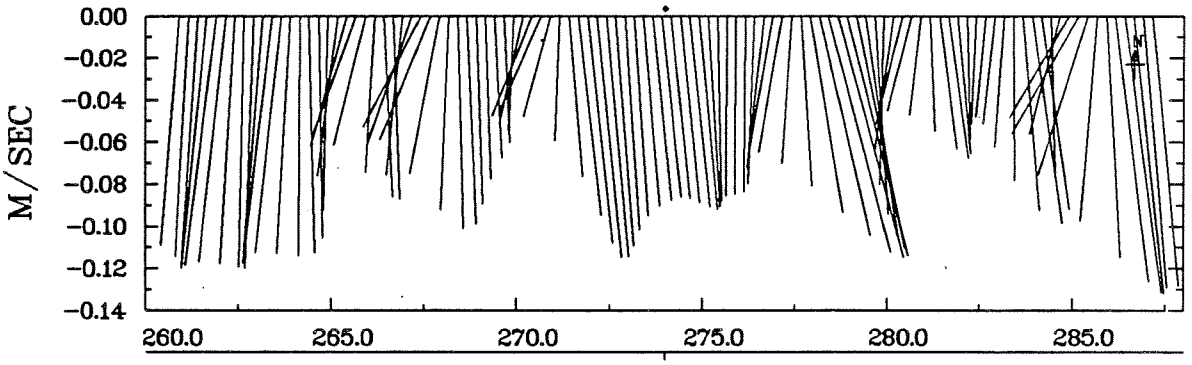

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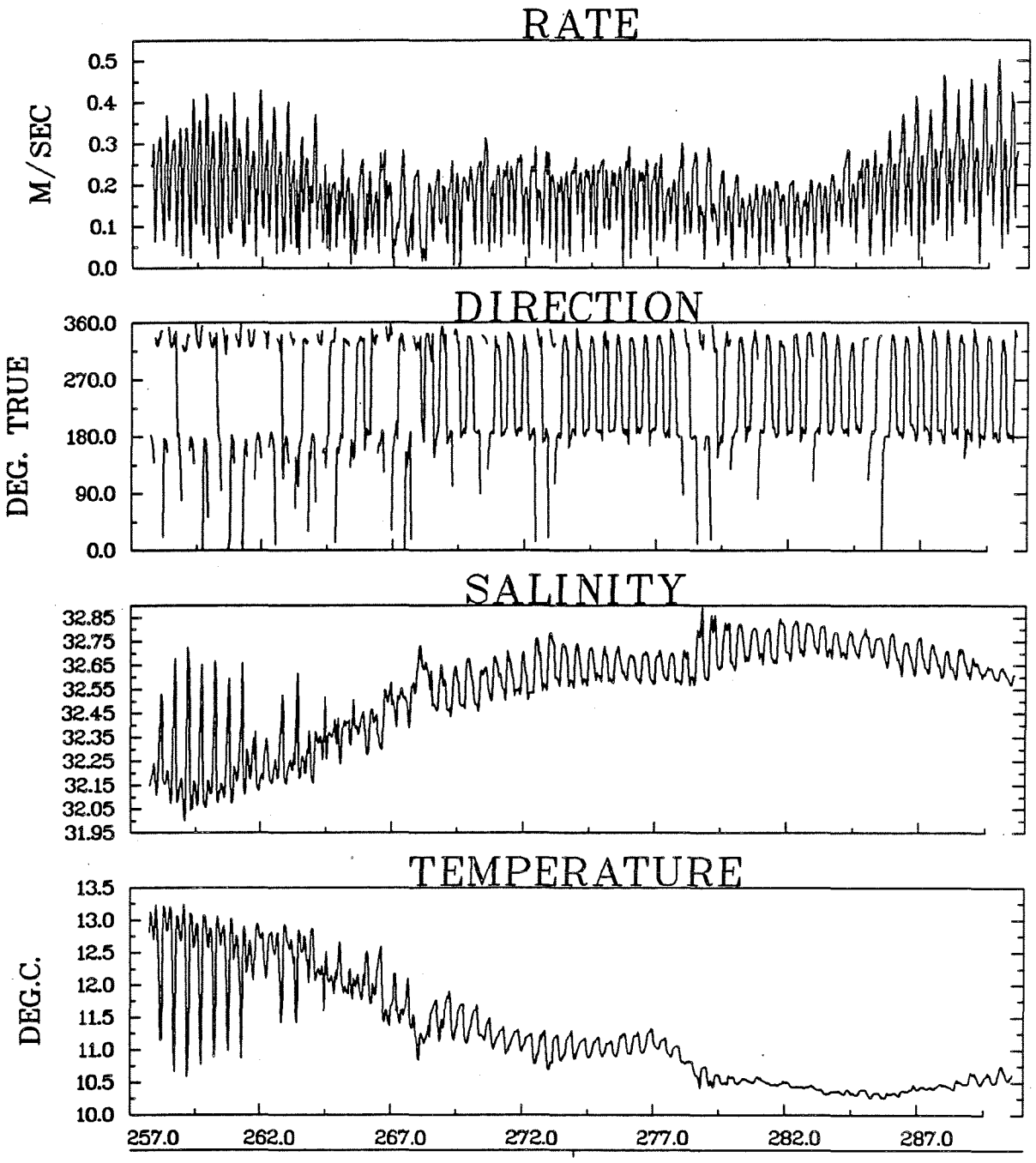

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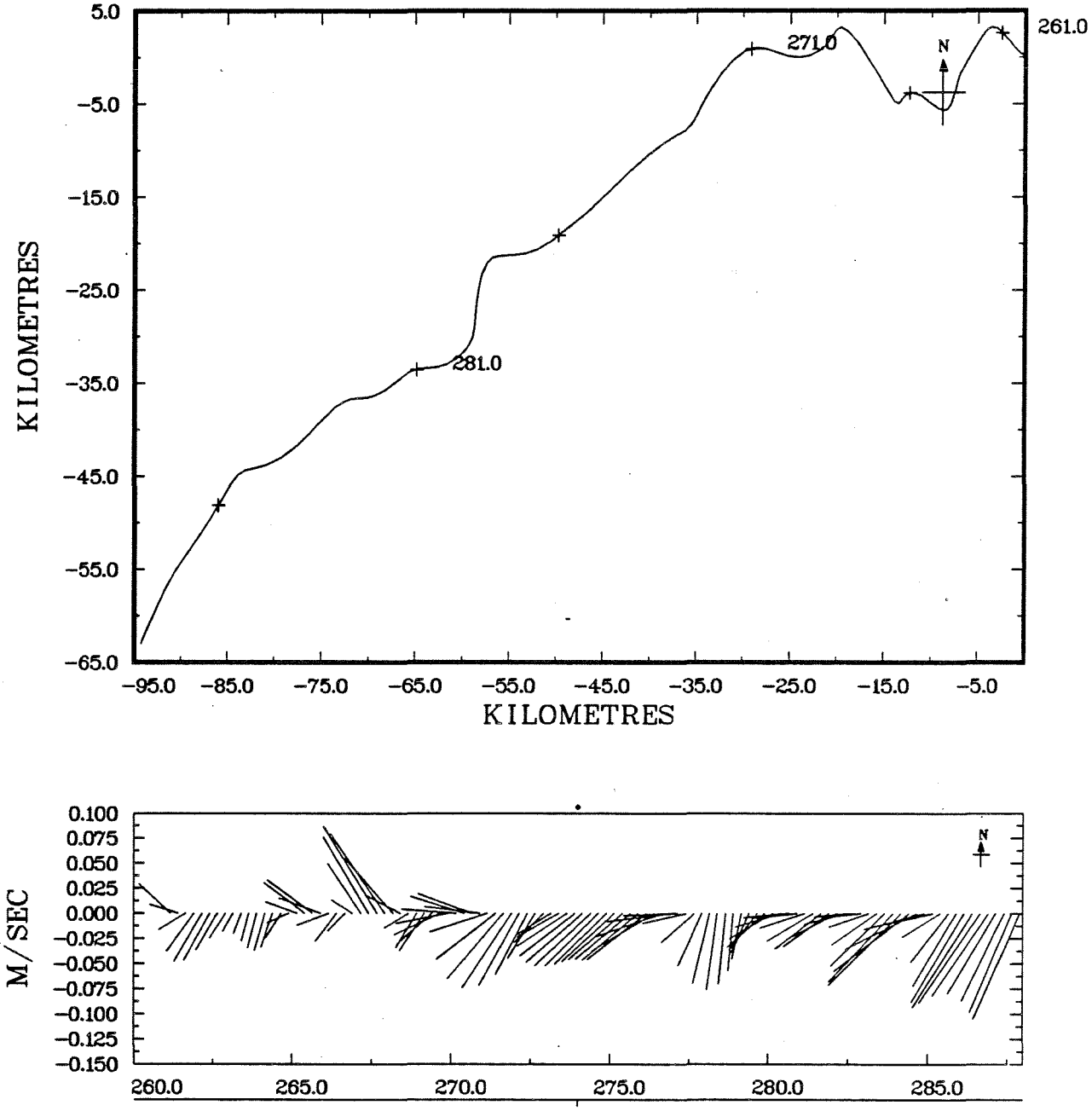

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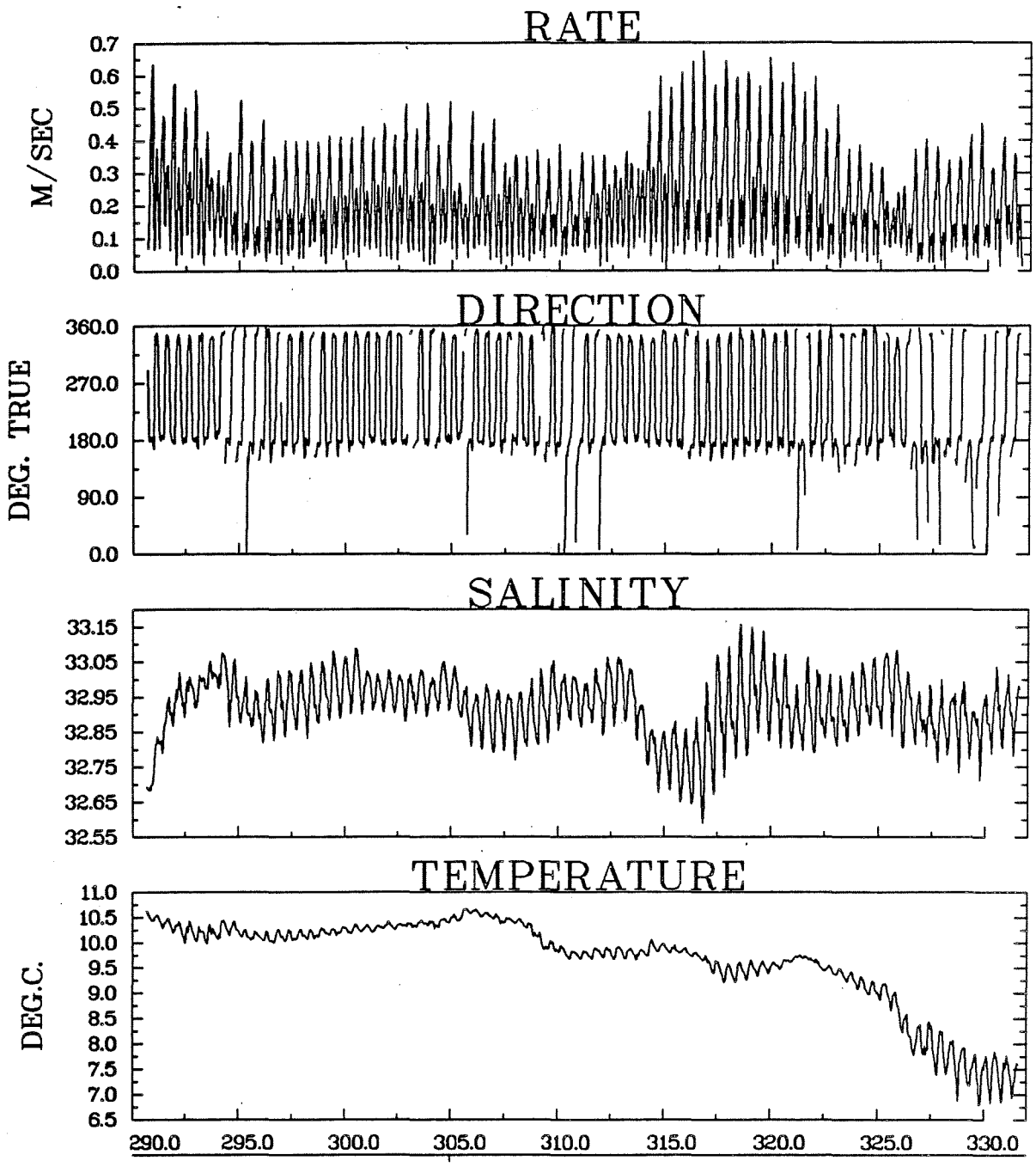

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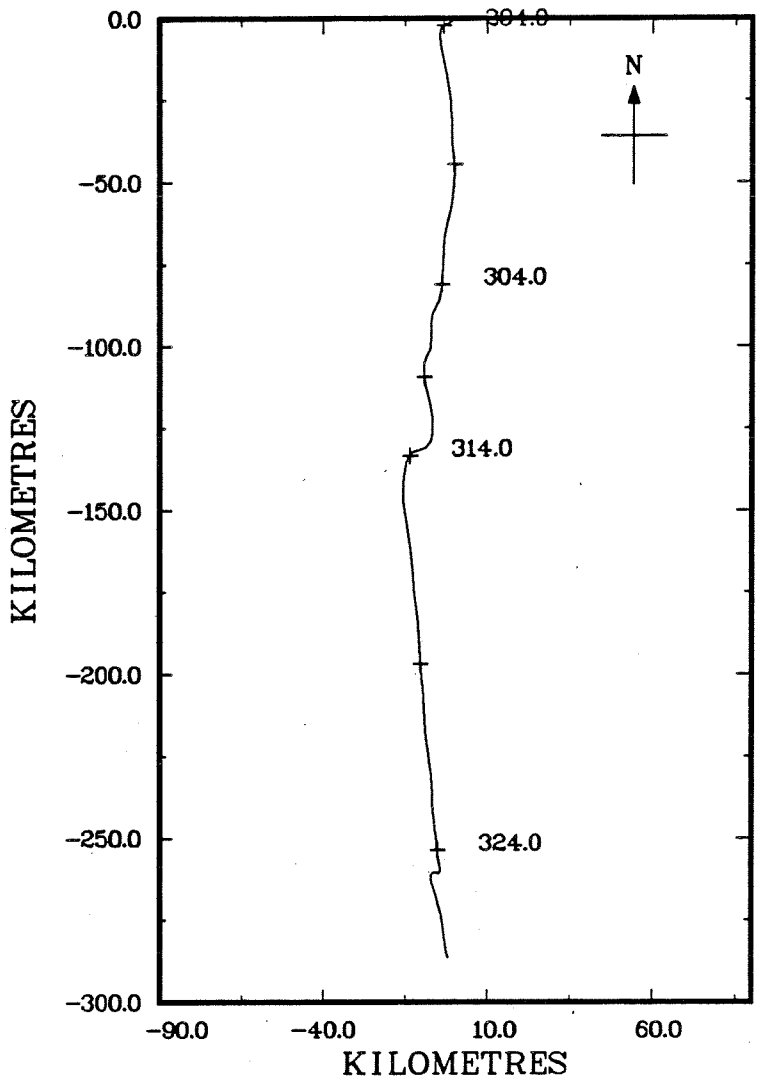

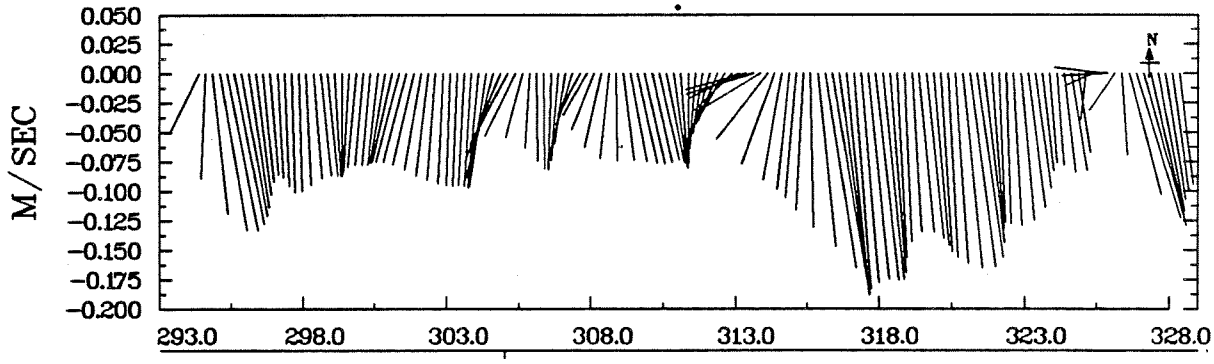

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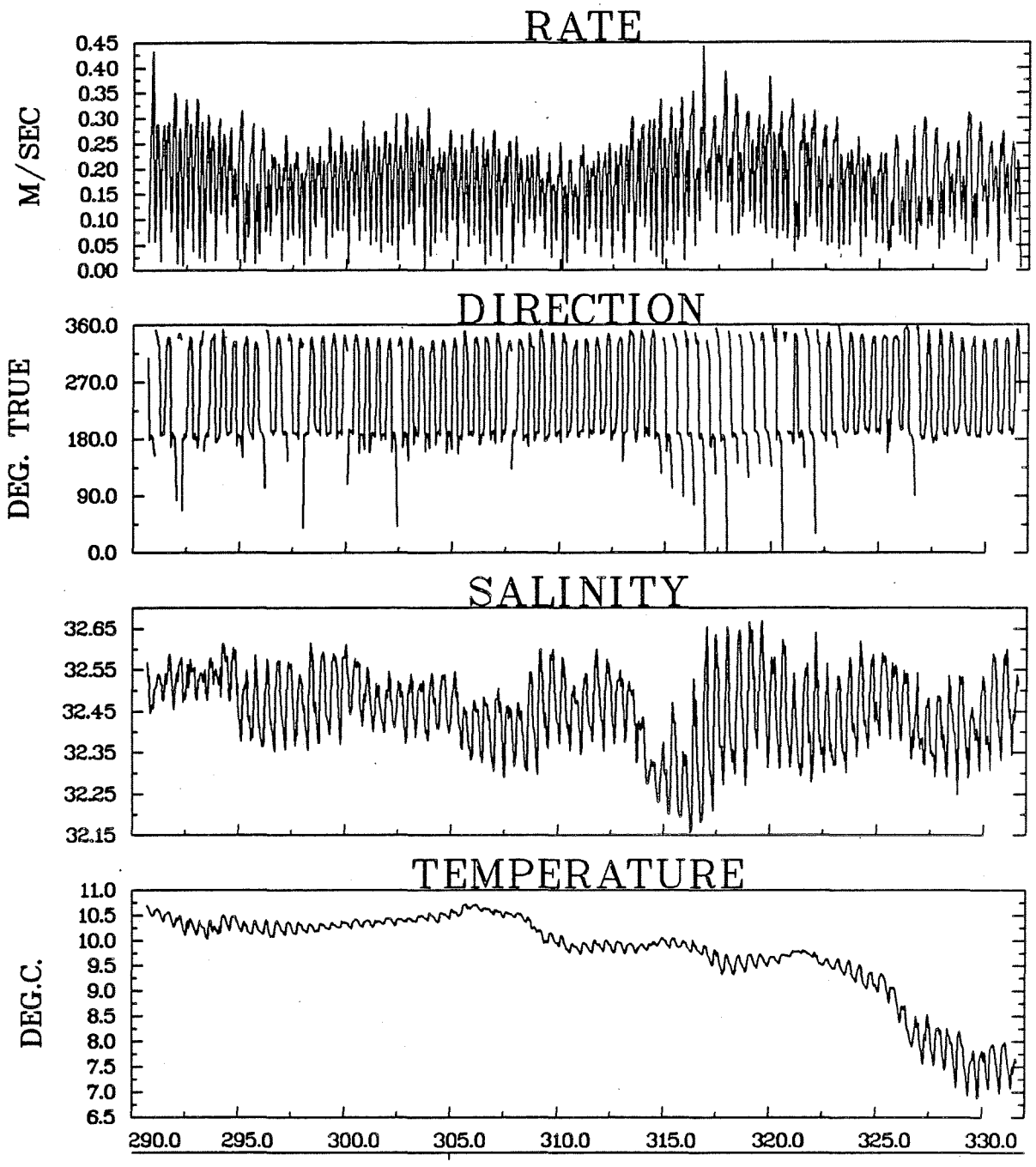

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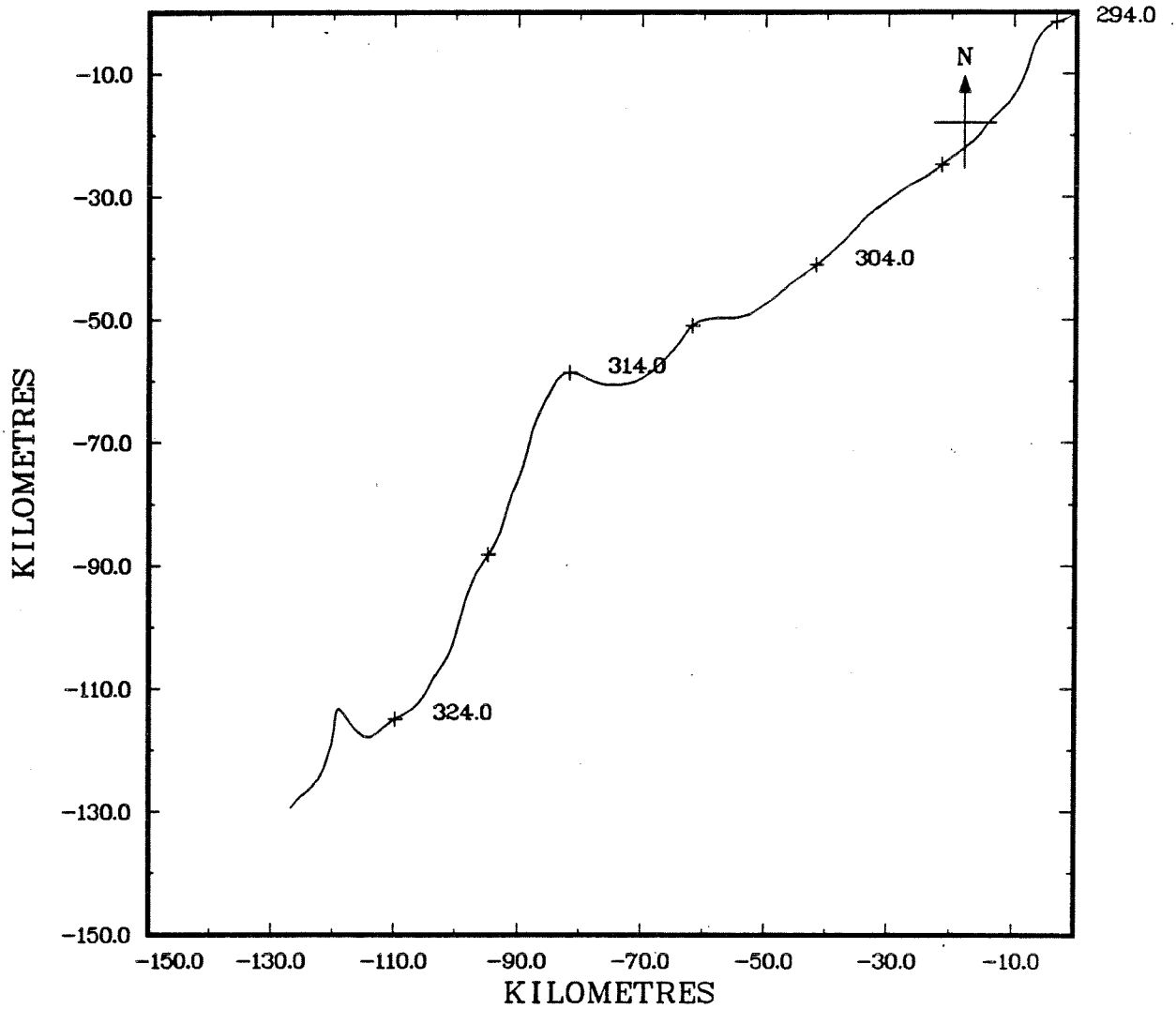

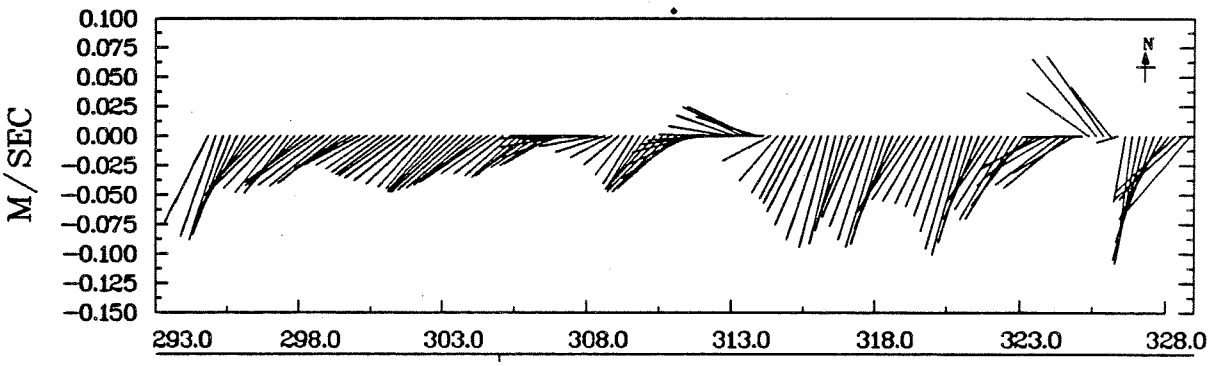

L'ETANG INLET SITE 9 20.5 M.