THE INTERNATIONAL COMET QUARTERLY

JANUARY 1980 VOL. 2, NO. 1

EPHEMERIS FOR COMET BRADFIELD (1979ℓ)

(From orbital elements on IAUC 3442)

DATE	ET	R. A. (1950)	DECL.	DELTA	R	ELONG.	MAG.
1980 01 22		18 39.85	-77 08.5	0.249	0.879	58.3	3.9
1980 01 24		00 10.34	-76 38.6				
1980 01 26		02 15.09	-57 43.2	0.198	0.943	72.2	3.7
1980 01 28		02 48.73	-37 01.1				
1980 01 30		03 03.56	-20 53.1	0.255	1.008	87.8	4.6
1980 02 01		03 11.92	-09 45.9				
1980 02 03		03 17.36	-02 10.5	0.374	1.073	93.2	5.7
1980 02 05		03 21.28	+03 10.1				
1980 02 07		03 24.31	+07 04.8	0.511	1.138	93.5	6.6
1980 02 09		03 26.79	+10 03.1				
1980 02 11		03 28.94	+12 22.7	0.655	1.203	92.0	7.4
1980 02 13		03 30.85	+14 14.9				
1980 02 15		03 32.61	+15 47.3	0.802	1.268	89.6	8.1
1980 02 17		03 34.26	+17 04.8				
1980 02 19		03 35.85	+18 10.8	0.948	1.333	86.9	8.6
1980 02 21		03 37.40	+19 07.9				
1980 02 23		03 38.91	+19 57.9	1.094	1.396	84.0	9.1
1980 02 25		03 40.41	+20 42.1				
1980 02 27		03 41.90	+21 21.6	1.239	1.460	81.0	9.6
1980 02 29		03 43.39	+21 57.3				
1980 03 02		03 44.87	+22 29.7	1.382	1.522	77.9	10.0
1980 03 04		03 46.37	+22 59.3				
1980 03 06		03 47.87	+23 26.6	1.523	1.585	74.8	10.4
1980 03 08		03 49.39	+23 51.9				
1980 03 10		03 50.91	+24 15.4	1.662	1.646	71.7	10.8
1980 03 12		03 52.45	+24 37.4				
1980 03 14		03 54.00	+24 58.1	1.798	1.707	68.6	11.1
1980 03 16		03 55.57	+25 17.6				

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FROM THE EDITORS

Subscribers are reminded that annual rates are now $6.00 per year for the ICQ ($8.00 per year outside North America). Subscribers paying these rates will be billed 3-4 months before the expiration of their subscription. Those who request the lower rates of $3.00 per year ($5.00 per year outside North America) must keep track of when their subscription expires. *Those subscribers who miss issues of the ICQ by renewing some time after their subscription's expiration are not entitled to such back issues.* Again we repeat that no new subscriptions may be entered with ICQ issues before the *current* issue; back issue information may be found on page 49 of the previous issue.

Readers may be interested to note that the ICQ is now catalogued in *Astronomy and Astrophysics Abstracts*, published twice annually by the Astronomisches Rechen-Institut in Heidelberg, West Germany.

The large number of observations received by the ICQ Staff in recent months has resulted in much discussion concerning the quality of published data. Effective immediately, the selection of observations for publication will be much more stringent for those observations made after Jan. 1, 1980. Magnitude estimates will normally be rejected if: (1) they are not made to tenths of a magnitude for visual determinations; (2) time of observation is not given (preferably to hundredths of a day, UT); and (3) no instrument is given. Exceptions will be made for observations made when comets are very faint, for photographic estimates, and for instances when comets are little observed (such as within a few days of discovery). Also, statement of references used for magnitude estimates is greatly preferred, and we can foresee making ΦΦΦΦΦΦΦΦΦΦΦΦΦΦΦΦΦΦΦΦΦΦΦΦΦΦΦΦΦΦΦΦΦΦΦΦΦΦΦΦΦΦ ing this a requirement in the near future. All observers are asked to report observations using the form published on page 30 of the July 1979 issue to facilitate the rapid processing of the data onto computer card images. (See also page 4.)

D. Green, C. Morris
Cambridge, Mass. (Jan. 9, 1980)

The International Comet Quarterly is a non-profit journal devoted to news and observation of comets. Issues are published 4 times per year (January, April, July, and October); the *ICQ* is published by the Physics Department of Appalachian State University, and is mailed from Boone, North Carolina. Subscription rates are $3.00 per year ($5.00 per year outside North America); annual invoicing charge is $3.00 additional. Supporting contribution subscriptions are $10.00 per year. Make checks payable to the *International Comet Quarterly* and send to the Editor at 721 S. Elmwood Ave.; Oak Park, IL 60304, U.S.A. All cometary observations should be sent to C. S. Morris; Prospect Hill Rd.; Harvard, MA 01451, U.S.A. Back issues may be obtained by writing to Dr. T. L. Rokoske; Physics Dept.; A.S.U.; Boone, NC 28608, U.S.A.

Staff

Daniel W.E. Green.....Editor
Thomas L. Rokoske.....Assoc. Editor
Charles S. Morris.....Assoc. Editor

Brian G. Marsden..Editorial Advisor

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PHOTOMETRIC PARAMETERS OF COMETS

Charles S. Morris, Prospect Hill Observatory

Beginning with this issue, the *ICQ* will publish periodically in this column photometric parameters derived from visual magnitude estimates of comets. The parameters included will be those sent directly to this journal by various groups and/or individuals worldwide, as well as those values found in the literature. In general, we will be publishing the comets' absolute magnitude (H_0) and brightness parameter (n) values as used in the standard formula

$$m_1 = H_0 + 5 \cdot \log \Delta + 2.5n \cdot \log r,$$

where m_1 is the observed magnitude, Δ is the comet's geocentric distance, r is the comet's heliocentric distance, and n determines how rapidly the comet's brightness changes with heliocentric distance. Less frequently, other photometric parameters will be given (e.g., H_{10}, the comet's absolute magnitude assuming $n = 4$).

Those wishing to submit cometary parameters should send the following information: (1) the comet's name and designation; (2) names of groups and individuals whose observations were used; (3) number of observations; (4) number of observers; (5) arc of orbit over which observations were made (i.e., range Δr and/or range of dates); (6) H_0; (7) n; (8) errors for parameters (if available)--please indicate whether errors are standard or probable; (9) whether graphical solution or least squares reduction was used; (10) whether or not an aperture correction was applied to the observations; (11) whether there were any unusual features in the light curve (e.g., flares, etc.). All photometric parameters should be sent to the author at the address on page 2 of this issue.

We initiate this new column with the analyses of two comets which appeared in 1977.

Periodic Comet Grigg-Skjellerup (1977 VI = 1977b)

Mr. Kiyoshi Sakurai communicates the following H_{10} value derived from 42 observations by 12 observers of Hoshino Hiroba and the Comet Section, Oriental Astronomical Association:

$$H_{10} = 13.76 \pm 0.34^*$$

Observations used in this calculation extend from 1977 April 16 to 30; no aperture correction was applied to these data.

Comet Kohler (1977 XIV = 1977m)

The results of magnitude analyses of 433 preperihelion and 215 postperihelion observations are presented in Hoshino Hiroba's Astro News Service No. 1118-1128 (1979 March 20). The data used in this study are currently being published in several issues of the *ICQ*. The following results were obtained from preperihelion observations which cover the period 1977 September 9 to November 10 (Δr = 1.45-0.99 AU) and from postperihelion observations which extend from 1977 November 11 to 1978 January 12 (Δr = 0.99-1.44 AU):

Preperihelion:	$H_0 = 7.32 \pm 0.02^*$	$n = 4.27 \pm 0.20^*$
Postperihelion:	$H_0 = 7.09 \pm 0.06^*$	$n = 5.44 \pm 0.56^*$

Aperture correction was not applied to these data.

*It is not clear whether these errors are standard or probable errors.

BRADFIELD'S TENTH COMET

On December 24 William Bradfield (Dernancourt, Australia) discovered his tenth comet in less than 8 years (see page 29 of the July 1979 issue of the *ICQ*). Bradfield's visual discovery was made when the 5th-magnitude object was moving southwestward in Scorpius; this comet was designated comet 19791, as it was the 12th confirmed comet discovery or recovery during the year. On December 24 and 25, the discoverer noted the comet as being diffuse with condensation and as having a tail slightly over 1 degree long. Observations made in South Africa by J. da S. Campos on December 29 and by Jack Bennett on the 29th and 30th list Comet Bradfield's total visual magnitude as between 4.8 and 5.6 with a tail up to 2 degrees in length (see observations on page 18). M. P. Candy (Perth Observatory) and David Herald (Kambah, Australia) suggested that this new comet might be a return of Comet 1770 II; however, 18 observations by the discoverer of Comet 1770 II, Messier, were used to confirm an orbit by Pingré which indicates that the two comets are <u>not</u> the same. These latter computations were made by Brian Marsden and Daniel Green at the Harvard-Smithsonian Center for Astrophysics after the Messier observations were found in a 1771 edition of the Paris *Mémoires de L'Académie Royale des Sciences* at Harvard's Houghten rare-book Library. (For Messier, it was the 12th comet he had discovered and observed in 13 years.)

The ephemeris on page 1 of this issue indicates the rapid motion of Comet 19791 as it passes at only a distance of 0.198 AU from the earth on January 26; more extensive ephemerides are published in the IAU *Circulars* (see page 20 of this issue). The magnitude values (m_1) may be somewhat off of observed values; these predicted values assume $H_0 = 7.5$ and $n = 4$ (see article, page 3). *Observers reporting information on this and other comets are asked to use the ICQ report form (see page 2).*

<u>NEWS OF OTHER COMETS</u>. *Periodic Comet Schwassmann-Wachmann 2* was recovered by Skip Schwartz on two exposures taken with the 1.55-m (61-inch) reflector at Harvard College Observatory's Agassiz Station on Dec. 14 and 15; this object was designated comet 1979k, and was near nuclear magnitude 20.5.

Several other comets have been observed during the past two months by visual observers with moderate size instruments, as documented in the following pages of this issue. --D.W.E.G.

OBSERVATIONS OF COMETS

Pages 6-19 of this issue contain a small portion of the large amount of data that have been received by the *ICQ* in recent months. Hearty thanks go to Dr. Marsden who has contributed much to the production of this journal during the past 1½ years; use of the Vax computer at the Smithsonian Astrophysical Observatory has enabled quick processing of the data. However, much of the data are received in scrambled form which requires much time for interpreting into computer card images; we ask observers to note the statements in the editorial on page 2 of this issue regarding specifications for observations. New observers are listed on page 5, and we publish on page 6 a complete list of the "Key to Sources" and the magnitude references with codes. Observations in this issue include those made by members of the following groups: the Dutch Comet Section; the Comets Section, Association of Lunar and Planetary Observers (Comet 1975 IX); Hoshino Hiroba; and the Comet Section, British Astronomical Association. An asterisk (*) indicates an updated observation (previously published in the *ICQ*).

FOLLOWING ARE ADDITIONS TO THE KEY TO OBSERVERS
(CF. VOL. 1, PP.32FF.)

ANA	07	J. A. ANASTASI, MALTA
BEE	11	G. W. E. BEEKMAN, THE NETHERLANDS
BEN01	07	JULIUS L. BENTON, SC, U.S.A.
BET	11	H. BETLEM, THE NETHERLANDS
BOU	11	REINDER J. BOUMA, THE NETHERLANDS
BOW	07	A. G. BOWYER, ENGLAND
BUC	09	D. BUCKLEY, NEW ZEALAND
BUS01	11	E. P. BUS, THE NETHERLANDS
COO	09	I. COOPER, NEW ZEALAND
DIE	11	D. DIERICK, BELGIUM
DOD	09	A. W. DODSON, NEW ZEALAND
DOH	07	P. B. DOHERTY, ENGLAND
DRU	11	M. DRUMMEN, THE NETHERLANDS
ENT	07	L. ENTWISLE, ENGLAND
FEI	11	H. FEIJTH, THE NETHERLANDS
FRY	07	D. FRYDMAN, ENGLAND
HER01	11	G. HERMANS, BELGIUM
HEY	11	B. HEYNDRICKX, BELGIUM
ING	07	L. G. INGE, ENGLAND
ION	09	G. IONAS, NEW ZEALAND
JAN	11	D. JANNINK, THE NETHERLANDS
JOS	07	M. L. JOSLIN, ENGLAND
KEA	07	G. KEAR, ENGLAND
KRO01	11	B. KROON, THE NETHERLANDS
LEM	07	A. G. LE MOEUR, ENGLAND
MIL01	07	S. W. MILBOURN, ENGLAND
MOR02		JAMES A. MORGAN, WI, U.S.A.
MUN	09	N. MUNFORD, NEW ZEALAND
NIG	07	H. C. NIGHTINGALE, ZAMBIA
NIK	09	B. NIKOLAU, NEW ZEALAND
PAP	11	E. PAPENBURG, THE NETHERLANDS
RAD	07	C. F. RADLEY, ENGLAND
SCO	07	P. R. SCOTT, ENGLAND
SEW	07	J. SEWARD, ENGLAND
TAY01	07	H. C. TAYLOR, ENGLAND
TAY02	07	G. E. TAYLOR, ENGLAND
VAN	11	N. A. VAN DER MAY, THE NETHERLANDS
VAN01	11	P. B. VAN DER WAL, THE NETHERLANDS
WAT	07	R. L. WATERFIELD, ENGLAND
WUB	11	E. K. WUBBENA, THE NETHERLANDS

FOLLOWING ARE CORRECTIONS TO THE KEY TO OBSERVERS

CAM		J. DA S. CAMPOS, DURBAN, SOUTH AFRICA
CAM01	09	R. N. CAMPBELL, NEW ZEALAND

KEY TO SOURCES

01 THE ASTRONOMER
04 TONIGHT'S ASTEROIDS
05 COMETS SECTION, ASSN. OF LUNAR AND PLANETARY OBSERVERS
06 HOSHINO HIROBA, JAPAN
07 COMET SECTION, BRITISH ASTRONOMICAL ASSOCIATION
08 MPC'S (MINOR PLANETS AND COMETS), I.A.U.
09 COMET SECTION, ROYAL ASTRONOMICAL SOC. OF NEW ZEALAND
10 BEOBACHTUNGEN, EDITED BY M. GROSSMANN, GRONAU, W. GERMANY
11 DUTCH COMET SECTION (WERKGROEP KOMETEN)

FOLLOWING ARE DESIGNATIONS FOR MAGNITUDE REFERENCES USED IN ICQ OBSERVATIONS TABULATIONS. NEW DESIGNATIONS ANNOUNCED AS NEEDED.

A = CHARTS OF THE AMERICAN ASSN. OF VARIABLE STAR OBSERVERS
C = CAPE PHOTOGRAPHIC CATALOGS
E = PHOTOELECTRIC OBSERVATIONS (MAGN. GIVEN TO HUNDREDTHS)
F = ASTRONOMISCHES GESELLSCHAFT KATALOG
H = HARVARD REVISED PHOTOMETRICAL SEQUENCE
K = SKALNATE-PLESO ATLAS CATALOG (ATLAS COELI)
L = LAMPKIN'S NAKED-EYE STARS
M = MESSIER OBJECTS, NGC OBJECTS, ETC. (NO STATED CATALOG)
N = NORTH POLAR SEQUENCE
O = U.S. NAVAL OBSERVATORY PHOTOELECTRIC PHOTOMETRY CATALOG
P = PHOTOGRAPHIC OBSERVATONS
S = SMITHSONIAN ASTROPHYSICAL OBSERVATORY STAR CATALOG
T = ATLASES BOREALIS, ECLIPTICALIS, AUSTRALIS
V = VARIABLE STAR CHARTS FROM GROUPS OTHER THAN A.A.V.S.O.
Y = YALE UNIVERSITY OBSERVATORY CATALOGUE OF BRIGHT STARS
Z = ARIZONA-TONANTZINTLA CATALOG

TABULATED OBSERVATIONS OF COMETS

COMET HONDA (1968 VI = 1968D)

DATE (UT)	MAG.	R	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1968 08 22.95	6.2	S	6.0	B		12					FEI
1968 08 24.03	6.3	S	6.0	B		12					FEI
1968 08 24.99	6.2	S	6.0	B		12					FEI
1968 08 25.86	6.5	S	6.0	B		12					FEI
1968 08 26.91	6.2	S	6.0	B		12					FEI
1968 08 27.89	6.2	S	6.0	B		12					FEI
1968 09 01.00	6.0	S	6.0	B		12					FEI
1968 09 05.90	6.1	S	6.0	B		12					FEI
1968 09 09.86	6.6	S	6.0	B		12					FEI
1968 09 11.92	6.4	S	6.0	B		12					FEI
1968 09 13.93	6.6	S	6.0	B		12					FEI
1968 09 18.95	7.1	S	6.0	B		12					FEI
1968 09 28.91	8.5	S	6.0	B		12					FEI

COMET ABE (1970 XV = 1970G)

DATE (UT)	MAG.	R	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1970 08 04.06	8.9	A	10.0	L		17	& 2				FEI
1970 08 05.02	8.4	A	10.0	L		17					FEI
1970 08 15.00	8.3	A	7.6	R		20					FEI
1970 08 26.94	6.4	S	6.0	B		12					FEI
1970 08 31.00	6.3	S	5.0	B		7					FEI
1970 09 05.08	6.5	S	5.0	B		7					FEI
1970 09 07.85	6.3	S	5.0	B		7					FEI
1970 09 10.95	6.2	S	5.0	B		7					FEI
1970 09 23.81	6.2	S	5.0	B		7					FEI

COMET KOBAYASHI-BERGER-MILON (1975 IX = 1975H)

DATE (UT)	MAG.	R	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1975 07 07.35	7.1	S	3.5	B		7	10				MIL
1975 07 07.49			32	L						220	JON
1975 07 07.49	8.3		7.8	R							JON
1975 07 07.53			30.5	L		146	3				JON01
1975 07 07.64	7.2		5.0	B		10	60				GOO
1975 07 08.17	6.6		5.0	B		10	12	3/			BOR
1975 07 08.27	6.9	S	5.2	R		8	20	4			MOR
1975 07 08.77	8.1	S	5.0	B		50					MAT
1975 07 09.53			30.5	L		72	3.5				JON01
1975 07 09.62	7 :		8.0	B		20	15				THO
1975 07 10.49	7.1		6.0	R		15	15		0.5	200	ASH
1975 07 10.50	6.9		5.0	B		10					GOO
1975 07 10.79	6.7	S	5.0	B		7					MAT
1975 07 11.48	7.9		6.0	R		15	15		&0.42	200	ASH
1975 07 11.52	6.7		5.0	R		15					GOO
1975 07 11.54	6.8		5.0	B		10					CAM01
1975 07 12.51	6.8		6.0	R		15			0.5		ASH
1975 07 12.53	6.3		5.0	R		15					GOO
1975 07 12.58	5.9		5.0	B		10					ELL
1975 07 12.58	7.0	S	30.0	L		40	3.7				MAT
1975 07 12.59	6.0		5.0	B		10	60				HEA
1975 07 12.66	6.3		5.0	B		10	60				STE
1975 07 13.50	7.1		6.0	R		15	20		&0.42		ASH
1975 07 14.09	5.6		5.0	B		10	27.5	5/			BOR
1975 07 14.96	5.8		8.0	B		15	20				ALC
1975 07 15.64	5.9		5.0	B		10					GOO
1975 07 16.31	5.5		5.0	B		10	17	4/	1	210	BOR
1975 07 16.44	6.1		5.0	B		10			1	190	GOO
1975 07 16.48	5.9		5.0	B		10	45		0.5	190	ELL
1975 07 16.49	5.8		5.0	B		10	45		1	190	HEA
1975 07 18.10	5.3		5.0	B		10	16	4/			BOR
1975 07 18.52	5.1		5.0	B		10	45		0.25	190	HEA
1975 07 18.52	5.6		5.0	B		10	45		0.25		STE
1975 07 18.52	5.6		5.0	B		10	60		<1	190	GOO
1975 07 22.18	5.7		15	L	4						MCE
1975 07 22.5	4.9		5.0	B		10	18	4/			BOR

COMET KOBAYASHI-BERGER-MILON (1975 IX = 1975H) CONT.

DATE (UT)	MAG.	R	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1975 07 25.23	5.2		15	L	4						MCE
1975 07 26.29	5.2		15	L	4						MCE
1975 07 26.5	4.7		5.0	B		10	16	4/	0.75	130	BOR
1975 07 27.5	4.8		5.0	B		10	17	6	0.67	120	BOR
1975 07 28.16	4.8		5.2	R		8	18		&1		MOR
1975 07 29.14	4.7		5.2	R		8	16		&1		MOR
1975 07 29.5	4.8		5.0	B		10	16	6/	1.67	105	BOR
1975 07 30.14	4.7		5.2	R		8	16	7/	>1		MOR
1975 08 01.5	4.7		5.0	B		10	14	5	2.33	90	BOR
1975 08 02.5	4.8		5.0	B		10	15	6	1.75	90	BOR
1975 08 03.5	4.9		5.0	B		10	10	6	2.33	80	BOR
1975 08 07.17	4.9	Y	5.2	R		8	13		4.5		MOR
1975 08 08.14	4.9	Y	5.2	R		8	10		3		MOR
1975 08 09.08	4.7		5.0	B		10	9	5/	4.25	70	BOR
1975 08 09.13	5.0	A	5.2	R		8	8		3		MOR
1975 08 10.09	4.8		5.0	B		10	9	6	4.75	67	BOR
1975 09 04.02	4.8		5.0	B		10	& 1				BOR
1975 09 11.40	4.9		8.0	B		15	> 2				BOR
1975 09 13.40	4.9		5.0	B		10	2				BOR
1975 09 14.40	5.1		5.0	B		10	1.5				BOR
1975 09 15.39	5.0		5.0	B		10	1.3				BOR
1975 09 29.40	6.4		5.0	B		10	2.0				BOR
1975 10 02.12	7.2	S	6.0	B		10	& 1				BEN
1975 10 03.10	6.8	S	6.0	B		10	& 2				BEN
1975 10 03.41	7.1		8.0	B		15	1.5				BOR
1975 10 04.40	6.9		5.0	B		10	2.0				BOR
1975 10 06.07	6.7	S	6.0	B		10					BEN
1975 10 07.40	7.1		5.0	B		10					BOR
1975 10 08.41	6.9		5.0	B		10	1.8				BOR

COMET WEST (1976 VI = 1975N)

DATE (UT)	MAG.	R	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1976 03 03.20	1.9	Z	5.0	B		7					COM
1976 03 03.21	0.7	Z	4.0	B		12					FEI
1976 03 03.21	1.8	Z		E							BEE
1976 03 04.20	0.9:	Z		E							BEE
1976 03 04.20	1.3	Z	4.0	B		12					FEI
1976 03 04.22	1.1	Z		E							VAN
1976 03 04.23	0.3	Z		E							BEI
1976 03 05.19	1.4	Z	5.0	B		.7					COM
1976 03 05.20	1.4	Z	4.0	B		12					FEI
1976 03 05.21	1.9	Z		E							BEE
1976 03 05.22	1.4	Z		E							BEI
1976 03 06.18	2.0	Z	5.0	B		7					BUS01
1976 03 06.18	2.0	Z	5.0	B		7					COM
1976 03 06.22	1.6	Z		E							BET
1976 03 06.22	2.1	Z	5.0	B		7					BEE
1976 03 07.21	2.0	Z	5.0	B		7					BEI

COMET WEST (1976 VI = 1975N) CONT.

DATE (UT)	MAG.	R	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1976 03 09.20	2.0:	Z	4.0	B		12					FEI
1976 03 09.21	1.9	Z	8.0	B		15					BET
1976 03 10.19	1.9	Z	4.0	B		12					FEI
1976 03 10.19	2.0	Z	5.0	B		7					DRU
1976 03 10.21	2.2	Z	8.0	B		15					BET
1976 03 20.14	3.8	Z	4.0	B		12					FEI
1976 03 20.14	3.9	Z	5.0	B		7					BUS
1976 03 20.14	4.0	Z	5.0	B		7					COM
1976 03 20.16	3.7	Z	5.0	B		7					PAP
1976 03 20.18	3.4	Z	5.0	B		7					BEE
1976 03 20.18	3.9	Z	8.0	B		15					BET
1976 03 21.14	4.3:	Z	4.0	B		12					FEI
1976 03 21.16	4.0	Z	5.0	B		7					BOU
1976 03 21.20	4.0	Z	8.0	B		15					BET
1976 03 22.16	4.2	Z	5.0	B		7					BUS
1976 03 22.17	3.9	Z	8.0	B		11					FEI
1976 03 22.17	4.0	Z	5.0	B		7					PAP
1976 03 23.16	4.4	Z	5.0	B		7					BOU
1976 03 23.19	4.1	Z	5.0	B		7					JAN
1976 03 24.19	4.2	Z	5.0	B		7					JAN
1976 03 28.15	4.8	Z	5.0	B		12					FEI
1976 03 28.16	4.9	Z	5.0	B		7					BOU
1976 03 30.08	5.0	Z	4.0	B		12					FEI
1976 03 30.14	5.0	Z	5.0	B		7					BOU
1976 04 04.09	5.4	O	4.0	B		12					FEI
1976 04 04.13	4.7	O	5.0	B		7					JAN
1976 04 04.14	5.2	O	5.0	B		7					BOU
1976 04 07.06	5.6	O	8.0	B		11					FEI
1976 04 08.14	5.0	O	5.0	B		7					JAN
1976 04 08.15	6.1	O	8.0	B		15					BET
1976 04 09.06	5.8	O	8.0	B		11					FEI
1976 04 09.14	5.7	O	5.0	B		7					JAN
1976 04 13.14	6.0	O	5.0	B		7					JAN
1976 04 20.03	6.8	O	8.0	B		11					FEI
1976 04 20.10	6.6	O	5.0	B		7					BOU
1976 04 21.13	7.0	O	8.0	B		15					BET
1976 04 22.06	6.8	O	5.0	B		7					BOU
1976 04 22.06	7.0	O	4.0	B		12					FEI
1976 04 25.06	6.9	O	5.0	B		7					BOU
1976 04 26.06	6.8	O	5.0	B		7					BOU
1976 04 28.06	6.9	O	5.0	B		7					BOU
1976 05 04.06	8.2	O	10.0	L		24					FEI
1976 05 23.95	8.5	O	14.0	L		50					FEI
1976 05 24.03	8.5	O	6.0	R		28					VAN
1976 06 05.01	9.4	A	14.0	L		50					FEI
1976 06 07.99	9.6	A	14.0	L		50					FEI
1976 06 29.97	9.7	A	10.0	L		24					FEI
1976 07 01.95	10.2	A	10.0	L		24					FEI

COMET KOHLER (1977 XIV = 1977M)

DATE (UT)		MAG.	R	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1977 09 09.05	*	9.9	A	32	L	6	55	2.1	2			BOR
1977 09 10.87		10.4	V	26	L		120	2.5	5			HUR
1977 09 11.05	*	9.0	V	5	B		10	5.5	2/			BOR
1977 09 11.05		9.6	A	32	L	6	55	3.0	3/			BOR
1977 09 11.84		10.5	V	26	L		80	3.0	5			HUR
1977 09 11.86		9.5		10	B		25	6.0	2/			PAN
1977 09 11.87		10.5:		21	L		35		2/			GAI
1977 09 11.90		9.7		15	L		48 &	4.0	2/			POT
1977 09 12.87		9.5		15	L		48	3.0	3/			POT
1977 09 12.87		9.7		20	L	4	45	6.0	3/			KEI
1977 09 12.88		10.0:		20	L	4	45	6.0	3/			KEI
1977 09 13.83		10.3	A	20.0	L			2				VAN
1977 09 13.84		10.5:		20	L	4	45	5.0	3/			KEI
1977 09 13.86		10.0:		26	L		80		2/			HUR
1977 09 14.85		9.8		20	L	4	33 &	4	4/			KEI
1977 09 14.87		9.5		8	B		15	6	2/			PAN
1977 09 14.87		10.7:		21	L		80		3/			GAI
1977 09 15.04		9.1	A	5	B		10	5.3	3/			JEB
1977 09 15.04		9.4	A	32	L	6	55	6.0	3/			JEB
1977 09 15.83		9.5		20	L	4	33		2/			KEI
1977 09 17.83		10.2	A	20.0	L			2				VAN
1977 09 17.84		9.5:		25	R	15	75		3/			RAD
1977 09 17.84		10.4		16	L		50 &	2.5	3/			LEM
1977 09 17.87		10	:	16	L	8	30	4.0	3/			TAY01
1977 09 18.75		10.0:		6	B		12		2/			ING
1977 09 18.83		9.5:		50	L							TAY02
1977 09 18.84		8.9	S	15	L		67 &	3.0	3			SHA02
1977 09 18.84		10.0:		16	L	8	48 &	4	2/			TAY01
1977 09 19.80		9.4	A	7.0	B		12	3				DIE
1977 09 19.84		10.2:	A	15.5	L		50					FEI
1977 09 23.80		9.1	A	7.0	B		12	5				DIE
1977 09 25.82		8.3		5	B		10 &	6	1/			HUR
1977 09 26.80		9.2	A	7.0	B		12	3				DIE
1977 09 27.77		8.6	A	8.0	B		20	4				HEY
1977 09 28.80		8.5		8	B		15	5.0	7/			KEI
1977 09 28.82		9.0:		16	L	8	48	5.5	3/			TAY01
1977 09 28.84		8.5:		26	L		80 &	5.0				HUR
1977 09 29.02		8.5	A	32	L	6	55	4.0	4			BOR
1977 09 29.50		9.7		12	R	5	45	2.0	2/			CLA
1977 09 29.80		9.8		16	L		50	3.0	2/			LEM
1977 09 30.00				32	L	6	55	4.7	5	0.42	60	BOR
1977 09 30.00	*	7.9	A	5	B		10	7.0	7/			BOR
1977 09 30.76		9.5		22	L	6	51		2/			ANA
1977 09 30.79		8.5	S	7.0	B		12	4				DIE
1977 10 01.01	*			32	L	6	65	5.9	4/	0.25	45	BOR
1977 10 01.01	*	8.0	A	5	B		10	7.0	4/			BOR
1977 10 01.79		8.3	S	7.0	B		12	5				DIE
1977 10 01.79		8.3	S	8.0	B		20	4				HEY
1977 10 01.80		8.0:	S	22	L		60	3.0	2/			STU

COMET KOHLER (1977 XIV = 1977M) CONT.

DATE (UT)		MAG.	R	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1977 10 01.81		8.0:	S	6	B		13	4.0	5			HEN
1977 10 01.81		8.8	S	11	R		70 &	4.0	3/			RID
1977 10 01.82		8.6	S	12	R		20	3.0	3/			MIL01
1977 10 01.82		8.9		8	B		15	4.0	2/			PAN
1977 10 01.84		8.4	F	26	L		80	5.0	7			HUR
1977 10 02.74		9.5		22	L		51		2/			ANA
1977 10 02.77		8.1	S	8.0	B		20	4				HEY
1977 10 02.78		8.2	S	7.0	B		12	4				DIE
1977 10 02.79		8.6	A	10.0	L		30					FEI
1977 10 02.80		7.8	S	26	L		80	9.0	7			HUR
1977 10 02.80		8.1	A	5.0	B		7	4.3				VAN
1977 10 02.80		8.9		8	B		15	5	4/			PAN
1977 10 02.81		7.6		8	B		10	4	2	0.13	30	KEI
1977 10 02.81		8.2	S	5	B		10	4	2/			ENT
1977 10 02.82		8.7	S	11	R		70 &	4	2/			RID
1977 10 02.83		8.0:		6	B		13 &	3.5	3/			HEN
1977 10 02.84		7.5:		16	L	8	48	7.5	6/			TAY01
1977 10 03.81		8.0	A	8.0	B		15					BOU
1977 10 04.02		7.8	S	11	R	10	66		2			BEN01
1977 10 04.50		9.1		20	L		48	2.5	2/			CLA
1977 10 04.74		9.0:		22	L	6	51		2/			ANA
1977 10 04.79		8.0	S	7.0	B		12	3				DIE
1977 10 04.80		7.2:		21	L		35	3.0	4/			GAI
1977 10 04.80		8.9		8	B		15	4.0	4/			PAN
1977 10 04.83		7.6	S	5	B		10	6.0				HUR
1977 10 04.83		7.8	S	8.0	B		20	4				HEY
1977 10 04.84		9.0:		30	L							SCO
1977 10 04.85		8.0		5	B		7 &	5.0	4/			SHA02
1977 10 04.86		8.0	S	5	B		10	4.0	2/			ENT
1977 10 04.86		8.0:		15	L		63	7.0	2/			HOS
1977 10 05.02	*			32	L	6	65	3.8	5	0.10	65	BOR
1977 10 05.02	*	7.8	A	5	B		10	5.2				BOR
1977 10 07.79		8	:	21	L		35	3	2/			GAI
1977 10 07.79		8.8	S	11	R		70 &	5	2/			RID
1977 10 07.79		9.1	S	22	L		60	5	2/			STU
1977 10 07.80		7.3		8	B		15 &	4.5	4/			KEI
1977 10 07.80		8	:	16	L		50	4	4/			LEM
1977 10 07.80		8.7:		8	R		24 &	5	2/			TAY
1977 10 07.81		8.3		8	B		15	5	4/			PAN
1977 10 07.83		7.2	H	6	R		22	10				HUR
1977 10 07.86		7.9	S	5	B		10	5	1/			ENT
1977 10 07.88		7.4		5	B		7					SHA02
1977 10 08.00				20	L	6	39	4.6	5	0.10	55	BOR
1977 10 08.00		7.5	A	5	B		10	6.1	5			BOR
1977 10 08.49		8.5		12	R	5	70	2.5	2/			CLA
1977 10 08.76		7.6	S	8.0	B		20	4				HEY
1977 10 08.79		7.5	S	7.6	B		12	5				DIE
1977 10 08.80		8.3		8	B		15	5	4/			PAN
1977 10 08.81		8.4	A	15.5	L		50					FEI

COMET KOHLER (1977 XIV = 1977M) CONT.

DATE (UT)		MAG.	R	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1977 10 08.84		8.2	A	5.0	B		7					VAN
1977 10 08.86		7.1		8	B		15	& 4.5	3/			KEI
1977 10 09.73		9	:	22	L		51		3/			ANA
1977 10 09.78		7.2		8	B		15	& 6				KEI
1977 10 09.78		7.5	S	7.0	B		12	3				DIE
1977 10 09.78		7.5	S	8.0	B		20	5				HEY
1977 10 09.81		8	:	15	L		60	7	4			BOW
1977 10 09.84		8.2	S	12	R		70	4	3/			RID
1977 10 09.99	*	7.6	A	5	B		10	4.6	5	0.50	80	BOR
1977 10 10.79		8	:P	10	R	5		3.0	4			HEN
1977 10 10.80		8.5		16	L		50	3	5			LEM
1977 10 10.81		7.3		15	L	4	24	3	3/			KEI
1977 10 10.81		7.4	S	5	B		10	6	3			ENT
1977 10 10.81		7.4	S	8	B		13	4	3			HEN
1977 10 10.81		7.8	S	15	L		63	7	3/			HOS
1977 10 10.81		7.8:	S	8	B		10	7	1			HOS
1977 10 10.81		8.3	S	12	R		70	4	3/			RID
1977 10 10.83		7	:S	22	L		60	5	6			STU
1977 10 10.84		7.6:		21	L		35	3.5	3/			GAI
1977 10 10.85		7	:H	5	B		10	10	3/			HUR
1977 10 10.85		8.4		12	R		20	5	5/			MIL01
1977 10 10.87		7.2		5	B		7	3	5/			SHA02
1977 10 10.87		8.0		8	B		15	5	5/			PAN
1977 10 11.75		8.5		22	L	6	51		5/			ANA
1977 10 11.80		7.5		21	L		35	& 5	5/			GAI
1977 10 11.81		8.3	S	12	R		70	& 4.5	4/			RID
1977 10 11.83		7.2		5	B		10	& 5	2/	0.17	45	KEI
1977 10 11.84		7.9		8	B		11	4	4/			PAN
1977 10 12.79		8.3		5	B		7	10				SHA02
1977 10 12.80		7.2		5	B		10	6	2/			KEI
1977 10 12.80		7.9		8	B		11	4	4			PAN
1977 10 12.80		8.4:		15	L		41	& 2.5	4/			KEA
1977 10 12.80		8.5:		21	L		35	3	3/			GAI
1977 10 12.81		7.0	S	6	R		22	12	4	0.17	45	HUR
1977 10 12.81		7.2	S	5	B		10		4			HUR
1977 10 12.81		8.4	S	12	R		70	5.0	4			RID
1977 10 12.82		7.8		16	L		50	3.5	6			LEM
1977 10 13.50		8.2		13	R	5	45	3.0	2/			CLA
1977 10 13.79		7.7		16	L		50	3.5	4			LEM
1977 10 13.79		7.8	S	5	B		10	6.0	2/			ENT
1977 10 13.81		8.3	S	5	B		7	& 7	5			SHA02
1977 10 13.82		8.4	S	12	R		70	5	4			RID
1977 10 14.70		7.9		8	B		11	4	4			PAN
1977 10 14.79		6.7	S	6	R		22	15	2			HUR
1977 10 14.80		7.5		16	L		50	& 3.5	4			LEM
1977 10 14.81		6.5		8	B		15		5			KEI
1977 10 14.81		8	:	15	L		60	7	5			BOW
1977 10 15.70		8.5		22	L	6	51		2/			ANA

COMET KOHLER (1977 XIV = 1977M) CONT.

DATE (UT)		MAG.	R	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1977 10 15.79		6.7	F	5	B		10	&10	1			HUR
1977 10 15.80		7.7		16	L		50	3.5	5			LEM
1977 10 15.81		8.3	S	12	R		70	5	4			RID
1977 10 16.05	*	7.4	A	5	B		10	4.5	7			BOR
1977 10 16.50		7.7		5	R		45	3.0	2			CLA
1977 10 16.79		7.0		15	L	4	24	3.0	5			KEI
1977 10 16.81		8.2		12	R		70	5.0	4			RID
1977 10 16.83		7.5:		6	B		12		2			ING
1977 10 17.41		8.1		10	L		55	8	3			TAN01
1977 10 17.42		8.0		10	L		25	4	5			OSA
1977 10 17.44		7.5		6	R		18	6	4			NAK01
1977 10 17.46		7.6		5	R		28	4				OKA03
1977 10 17.48		8.2		12	B		20	5				OKA
1977 10 18.40		8.3		10	L		24	8	3			SAT
1977 10 18.42		7.9		10	L		55	8	3			TAN01
1977 10 18.47		7.5		5	R		28	5	6			OKA03
1977 10 18.47		8.0		15	L		28	5	5			NAK
1977 10 18.49		8.0		10	L		55	5		0.08		TSU
1977 10 18.50		7.3		13	R		70	4	2/			CLA
1977 10 19.40		7.8		25	L		62	8	5	0.17		UOM
1977 10 19.41		7.5		6.5	R		32	7	7			AIY
1977 10 19.41		7.7		10	L		55	8	3			TAN01
1977 10 19.42		7.8		6.5	R		20	3	4			MAK
1977 10 19.42		7.9		15	L		38	5	4	0.25		SEI
1977 10 19.42		8.3		10	L		24	7	4			SAT
1977 10 19.43		7.4		5	R		28	6	5			OKA03
1977 10 19.44		7.4		5	R		12	5				TAK
1977 10 19.45		7.7		21	L		33	5	4			SUZ
1977 10 19.75		6.6		5	B		10		7			KEI
1977 10 19.75		7.4		15	L	4	24	4.0	7/			KEI
1977 10 19.75		7.4		15	L	4	24	4.0	7/			KEI
1977 10 19.83		7.4		8	B		11	4.0	4			PAN
1977 10 19.83		7.4		8	B		11	4.0	4			PAN
1977 10 20.39		7.7		15	L		28	5	5			MIT
1977 10 20.40		8.3		11	L		24	6	3			SAT
1977 10 20.41		7.8		5	R		8	6				TAK01
1977 10 20.41		7.9		10	L		50	6				NAG
1977 10 20.41		8.0		6.5	R		65	6	5			AIY
1977 10 20.41		8.0		8	R		30	5				SUN
1977 10 20.42		7.5		6.5	R		20	3	4			MAK
1977 10 20.42		7.5		25	L		62	8				UOM
1977 10 20.42		7.6		10	L		55	8	3			TAN01
1977 10 20.42		7.8		10	L		25	5	6			OSA
1977 10 20.43		7.2		6	R		18	6	5			NAK01
1977 10 20.43		8.9		20	L		40	6	3			EGA
1977 10 20.44		7.9		6.5	R		28	5				KIK
1977 10 20.45		8.1		15	L		38	5	4	0.25		SEI
1977 10 20.47		7.4		5	R		28	6	5			OKA03

COMET KOHLER (1977 XIV = 1977M) CONT.

DATE (UT)		MAG.	R	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1977 10 21.39		6.9		10	L		40	4	3			HON
1977 10 21.39		7.6		15	L		28	5	5			MIT
1977 10 21.39		7.8		8	R		30	3				SUN
1977 10 21.40		7.5		6.5	R		32	6	5			AIY
1977 10 21.40		7.8		15	L		38	5	4	0.25		SEI
1977 10 21.41		7.6		25	L		62	6				UOM
1977 10 21.42		7.2		6	R		18	7	5			NAK01
1977 10 21.42		7.7		12	B		20	5	6			FUR
1977 10 21.42		8.3		15	L		43	6	4			SAT
1977 10 21.43		7.7		6.5	R		20	3	3			MIT
1977 10 21.43		7.9		5	R		8	6				TAK01
1977 10 21.44		7.6		10	L		55	8	3			TAN01
1977 10 21.45		7.8		12	L		33	7	4			SAK
1977 10 21.47		7.2		5	R		28	5	4			OKA03
1977 10 21.99	*	7.2	O	5	B		10	5.7	6			BOR
1977 10 21.99	*	7.2	O	5	B		10	5.7	6			BOR
1977 10 22.37		7.6		12	L		33	8	5	0.17		SAK
1977 10 22.38		6.9		10	L		40	5	3			HON
1977 10 22.39		7.5		5	B		6	6				SAK
1977 10 22.39		7.6		5	R		28	7	6			UCH
1977 10 22.40		7.5		15	L		28	5	5			MIT
1977 10 22.40		7.6		10	L		20	4	4			TOK
1977 10 22.41		7.3		6.5	R		32	6	5			AIY
1977 10 22.42		8.0		15	L		38	5	4	0.25		SEI
1977 10 22.42		8.2		15	L		43	7	4			SAT
1977 10 22.42		8.8		20	R		40	4	2	0.03		EGA
1977 10 22.43		7.9		5	R		8	5				TAK01
1977 10 22.44		7.6		12	B		20	4	6			FUR
1977 10 22.46		8.0		10	L		56	5				KOT
1977 10 22.47		7.0		5	R		28	6				OKA03
1977 10 23.00		7.1	O	5	B		10	5.5	5/			BOR
1977 10 23.00		7.1	O	5	B		10	5.5	5/			BOR
1977 10 23.38		7.7		12	L		33	7	5	0.12		SAK
1977 10 23.39		7.5		15	L		28	5				MIT
1977 10 23.39		7.6		8	R		30	5				SUN
1977 10 23.40		7.3		6.5	R		32	6	5			AIY
1977 10 23.40		7.6		12	B		20	5	5			FUR
1977 10 23.41		7.8		15	L		38	5	4	0.17		SEI
1977 10 23.73		7.5		22	L		51 & 3		3/	0.05		ANA
1977 10 23.73		7.5		22	L		51 & 3		3/	0.05		ANA
1977 10 24.72		7.5		22	L		51		4/	0.05		ANA
1977 10 24.72		7.5		22	L		51		4/	0.05		ANA
1977 10 25.75		7.8:		8	R		24					TAY
1977 10 25.75		7.8:		8	R		24					TAY
1977 10 25.76		8.2	S	8	B		10	5	5			SHA02
1977 10 25.76		8.2	S	8	B		10	5	5			SHA02
1977 10 25.77		6.5	S	5	B		10					HUR
1977 10 25.77		6.5	S	5	B		10					HUR
1977 10 25.78		8.5		21	L		35	3	4			GAI

COMET KOHLER (1977 XIV = 1977M) CONT.

DATE (UT)		MAG.	R	AP.	T	F/.	PWR	COMA	DC	TAIL	PA	OBS.
1977 10 25.78		8.5		21	L		35	3	4			GAI
1977 10 25.79		6.6		5	B		10	6.0	5/			KEI
1977 10 25.79		6.6		5	B		10	6.0	5/			KEI
1977 10 25.79		7.2		8	B		15	5	4			PAN
1977 10 25.79		7.2		8	B		15	5	4			PAN
1977 10 25.79		8	:	8	R				4/			SEW
1977 10 25.79		8	:	8	R				4/			SEW
1977 10 27.73		7.3		22	L		51					ANA
1977 10 27.73		7.3		22	L		51					ANA
1977 10 27.77		7.6	S	15	L		67	3	6			SHA02
1977 10 27.77		7.6	S	15	L		67	3	6			SHA02
1977 10 28.98				32	L	6	65			0.10	220	BOR
1977 10 28.98				32	L	6	65			0.10	220	BOR
1977 10 28.98				32	L	6	65	4.5	6	0.50	0	BOR
1977 10 28.98				32	L	6	65	4.5	6	0.50	0	BOR
1977 10 28.98	*	6.9	O	5	B		10	6.8	6			BOR
1977 10 28.98	*	6.9	O	5	B		10	6.8	6			BOR
1977 10 29.71		7.3		22	L				3/			ANA
1977 10 29.71		7.3		22	L				3/			ANA
1977 10 29.77		7.2		16	L		50	3	7/			LEM
1977 10 29.77		7.2		16	L		50	3	7/			LEM
1977 10 29.81		7.3:		16	L		60	6.5	5/			BOW
1977 10 29.81		7.3:		16	L		60	6.5	5/			BOW
1977 10 30.74		6.6	S	8.0	B		20	6				HEY
1977 10 30.98				32	L		65			0.50	20	BOR
1977 10 30.98				32	L		65			0.50	20	BOR
1977 10 30.98				32	L		65	4.3	6	0.60	65	BOR
1977 10 30.98				32	L		65	4.3	6	0.60	65	BOR
1977 10 30.98		7.0	O	5	B		10	7.1	6			BOR
1977 10 30.98		7.0	O	5	B		10	7.1	6			BOR
1977 10 31.27		6.8		8	R		24	& 4				TAY
1977 10 31.27		6.8		8	R		24	& 4				TAY
1977 10 31.51		6.5		20	L		48	7	3/			CLA
1977 10 31.73		8.0:		5.0	B		7		3/			NIG
1977 10 31.75		6.5	S	7.0	B		12	10				DIE
1977 10 31.76		6.6	S	5.0	B		10	15		0.5	0	HUR
1977 10 31.76		7.3	S	12	R		70	6	6			RID
1977 10 31.77		6.3		5.0	B		10	6	6			KEI
1977 10 31.77		6.4		20	L	4	33	8	5			KEI
1977 10 31.77		7.3		15	L		67	4	6	0.1		SHA02
1977 10 31.78		7	:	8	R				3/	0.3		SEW
1977 10 31.80		6.6		8.0	B		15	5	4			PAN
1977 10 31.87				26	L		40	8	7	0.3	40	HUR
1977 11 01.72		7.0	A	8.0	B		15					BOU
1977 11 01.75		7.0	A	8.0	B		11					FEI
1977 11 02.39		7.0		7	B		35		5	0.50		SEI
1977 11 02.40		7.7		15	L		29	5				SUG

COMET KOHLER (1977 XIV = 1977M) CONT.

DATE (UT)	MAG.	R	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1977 11 02.41	6.5		5	R		12	9				TAK
1977 11 02.42	6.8		6	R		18	9	5			NAK01
1977 11 02.42	6.8		10	L		40	5				KAW
1977 11 02.42	7.1		25	L		62	7	4	0.50		UOM
1977 11 02.42	7.6		15	L		56	7				OKA01
1977 11 02.43	6.7		5	R		28	8	6			OKA03
1977 11 02.43	7.6		10	L		24	10	4			SAT
1977 11 03.37	6.6		10	L		40	5	4			HON
1977 11 03.38	7.0		7	B		10	4				KIT
1977 11 03.38	7.4		10	L		24	8	4			SAT
1977 11 03.39	7.0		10	L		34	6	5			IDA
1977 11 03.39	7.2		5	B		7	7	6			OCH
1977 11 03.39	7.3		10	L		25		6			HAS01
1977 11 03.39	7.4		6.5	R		28					ISH01
1977 11 03.39	7.5		10	L		25		7			SUN
1977 11 03.39	7.6		15	L		33					TAK03
1977 11 03.40	6.7		5	R		8	12	5			TAK01
1977 11 03.40	6.8		10	L		25	10	3			HOS01
1977 11 03.40	7.0		5	B		7	5	4			TOM
1977 11 03.40	7.2		15	L		54	6	4			MAT03
1977 11 03.40	7.3		9	L		30	8	6			YAS
1977 11 03.40	7.3		12	B		20	6	6			YAN
1977 11 03.40	7.5		6.5	R		28	6	7			UCH
1977 11 03.40	7.6		10	L		25	6	6			UCH01
1977 11 03.40	7.8		10	L		25	7	7			SUZ
1977 11 03.43	7.8		7	B		10	7	5	0.17		ASA
1977 11 03.44	7.3		15	L		38		5	0.50		SEI
1977 11 03.45	7.0		25	L		62	6	4	0.10		UOM
1977 11 03.77	7.0	A	8.0	B		15					BOU
1977 11 03.78	6.8	A	8.0	B		11					FEI
1977 11 04.43	6.7		5	R		28	8	6			OKA03
1977 11 04.43	6.8		6	R		18	8	5			NAK01
1977 11 04.43	7.6		7	B		10	7	5			ASA
1977 11 04.44	6.8		25	L		62	8	4	0.50		UOM
1977 11 04.76	7.2	A	8.0	B		15					BOU
1977 11 04.77	6.4	S	7.0	B		12	8				DIE
1977 11 04.79	6.4	S	8.0	B		20	10				HEY
1977 11 05.38	6.5		6.5	R		32	5	5			AIY
1977 11 05.38	7.0		12	B		20	4	6			YAN
1977 11 05.38	7.2		15	L		28	6	6			MIT
1977 11 05.38	7.4		10	L		25		7			HAS01
1977 11 05.38	7.5		6.5	R		28	5	7			UCH
1977 11 05.38	7.6		10	L		25	6	7			KIK
1977 11 05.39	7.3		6.5	R		28	5	7			KIK
1977 11 05.39	7.7		5	B		10					TAK03
1977 11 05.40	6.5		5	B		6	7	5			SAK
1977 11 05.40	7.4		10	L		55	8	5			TAN01
1977 11 05.40	7.5		10	L		55	4	4			TAK04
1977 11 05.40	7.6		10	L		25		6			SUN

COMET KOHLER (1977 XIV = 1977M) CONT.

DATE (UT)	MAG.	R	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1977 11 05.41	6.8		8	R		30	5				HOS01
1977 11 05.42	7.3		10	L		25	6	7			SUZ01
1977 11 05.43	7.3		10	L		25					ISH01
1977 11 06.40	6.2		12	L		22	10				OSA
1977 11 06.40	7.5		10	L		55	4	4			TAK04
1977 11 07.38	6.8		7	B		10	5		0.50		KIT
1977 11 07.39	7.4		10	L		20	4	4			TOK
1977 11 07.40	7.3		7	B		10	7				OKA01
1977 11 07.41	6.2		5	R		12	10				TAK
1977 11 07.47	7.0		21	L		33	5	5			SUZ
1977 11 07.73	6.4	S	8.0	B		20	10				HEY
1977 11 07.75	6.5	S	7.0	B		12	8				DIE
1977 11 08.40	6.5		10	L		40	6	4			HON
1977 11 08.43	7.5		10	L		55	4	4			TAK04
1977 11 08.45	7.2		10	L		55	9	6			TAN01
1977 11 09.31	7.4		10	L		50	8				HAY
1977 11 09.38	7.2		10	L		20	5	4			TOK
1977 11 09.39	6.0		12	L		22	10				TAK
1977 11 09.39	6.8		5	B		7	7				TER
1977 11 09.41	6.7		7	B		10	5		0.33		KIT
1977 11 09.42	6.6		5	B		7	5	3			MAK
1977 11 09.42	6.6		5	R		8	12	6			TAK01
1977 11 09.42	7.3		15	L		38	5	5	0.50		SEI
1977 11 09.43	7.0		5	B		7	7				OKA01
1977 11 09.44	7.0		7	B		16	7				SAW
1977 11 09.44	7.0		10	L		55	9	6			TAN01
1977 11 09.46	7.1		21	L		33	5	4			SUZ
1977 11 10.39	7.2		10	L		20	5	4			TOK
1977 11 10.40	5.8		12	L		22	12				TAK
1977 11 10.44	7.1		10	L		55	9	6			TAN01
1977 11 10.73	6.7	A	8.0	B		11					FEI
1977 11 10.73	7.0	A	8.0	B		15					BOU
1977 11 10.75	6.5	S	7.0	B		12	8				DIE
1977 11 10.75	6.5	S	20.0	L		65	11				HEY
1977 11 11.74	6.5	S	7.0	B		12	8				DIE
1977 11 12.74	6.6	S	7.0	B		12	6				DIE
1977 11 13.74	6.6	O	4.0	B		12					FEI
1977 11 13.77	7.0	O	4.0	B		12					COM
1977 11 13.77	7.1	O	4.0	B		12					BUS01
1977 11 16.72	6.5	S	8.0	B		20	8				HEY
1977 11 18.72	6.6	S	8.0	B		20	9				HEY

COMET MEIER (1978 XXI = 1978F)

DATE (UT)	MAG.	R	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1979 09 18.10	12.5:		41	L							HAL
1979 09 20.12	12.5		41	L			& 1				HAL

COMET BRADFIELD (1979C)

DATE (UT)		MAG.	R	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1979 06 26.46	*	10.2		12.5	R	5	70	3.0	3			CLA
1979 06 27.45	*	9.9		25	L	8	55	3.0	3			CLA
1979 08 28.08		10.5		47	L		52	2.8	1/			KEI
1979 09 17.26		12.8:		41	L							HAL

COMET MEIER (1979I)

DATE (UT)	MAG.	R	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1979 09 28.99	11.6:		30	L	5	89	& 2	2			KEI
1979 10 02.09	11.6		30	L	5	62	2.8	5			KEI
1979 10 09.03	11.8	A	25	L	7	70	2	2			MOR
1979 10 10.87	11.5:		30	L	5	62	& 1.5	6/			KEI
1979 10 11.80	11.6		30	L	5	62	1.9	6	0.07	95	KEI
1979 10 14.79	11.6		30	L	5	62	2.5	6			KEI
1979 10 15.77	11.5:		30	L	5	62	2.5	6/			KEI
1979 10 20.83	11.5:		30	L	5	62	2.0	6/			KEI
1979 10 21.16	11.8		30	L	5	62	1.7	5/			KEI
1979 10 21.79	11.8		30	L	5	62	1.1	4			KEI
1979 10 25.03	12.0		32	L							MOR02
1979 11 30.38	11.7	A	25	L		70	2.5	3			MOR

COMET BRADFIELD (1979L)

DATE (UT)	MAG.	R	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1979 12 29.05	4.8		12	R		21	1		2		CAM
1979 12 29.08	5.6	S	3.5	B		7	1.5		>1	245	BEN
1979 12 31.08	5.5	S	3.5	B		7			1.5		BEN
1980 01 01.04			12	R			2				CAM

PERIODIC COMET ENCKE (1977 XI)

DATE (UT)		MAG.	R	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1977 09 05.30		8.8	S	20	L			& 3.5				NIK
1977 09 06.30		9.4	S	20	L			& 4				MUN
1977 09 06.30		9.7	S	20	L			4				NIK
1977 09 07.30		9.5	S	20	L			2				NIK
1977 09 08.31		11	S	30	L			2				MUN
1977 09 08.32	*	9.6	S	32	L		86		1/			JON

PERIODIC COMET GRIGG-SKJELLERUP (1977 VI = 1977B)

DATE (UT)	MAG.	R	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1977 03 19.48	12.8	V	32	L		86		1/			JON
1977 03 20.42	12.5	V	32	L		86		1/			JON
1977 04 02.72	12.0	V	32	L		86		2/			JON
1977 04 14.71	11.4	V	32	L		86		2/			JON
1977 04 20.74	11.7	V	32	L		86		2/			JON
1977 04 28.12	11.3	V	26	L		80	& 4	1/			HUR

PERIODIC COMET SCHWASSMANN-WACHMANN 3 (1979G)

DATE (UT)		MAG.	R	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1979 08 20.47		11.9		25	L	8	55	0.4	8			CLA
1979 08 20.50	*	11.8:		26.7	L							CLA
1979 08 22.48		12.0		25	L	8	55	0.4	8			CLA
1979 08 25.48		11.9		25	L	8	55	0.4	8			CLA

PERIODIC COMET ASHBROOK-JACKSON (1978 XIV = 1977G)

DATE (UT)		MAG.	R	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1978 09 02.98		12.6	P	15	R	4		0.25	5	0.07	270	WAT
1978 09 25.91		11.5	P	15	R	4						WAT
1978 09 25.97	*	11.2		20.3	L	4	79	0.8	2	0.05	310	KEI
1978 10 03.92	*	11.3:		20.3	L	4	79 &	1.4	4	0.07	270	KEI
1978 10 04.89	*	11.3:		20.3	L	4	79 &	1.4	4/			KEI
1978 10 06.89	*	11.6		20.3	L	4	79 &	1.8	2/	0.13	257	KEI
1978 10 07.88	*	11.7		20.3	L	4	79	1.7	2			KEI
1978 10 08.86		11.7:		20.3	L	4	79 &	1.5	2/			KEI
1978 10 11.01	*	12.0		20.3	L	4	79 &	1.3	2/			KEI
1978 10 22.87	*	11.9		20.3	L	4	79 &	1.0	1/			KEI
1978 10 23.81	*	11.9		20.3	L	4	79 &	0.8	2/			KEI
1978 10 25.80	*	12.0		20.3	L	4	79 &	0.9	3			KEI
1978 10 26.96	*	12.1		20.3	L	4	79	1.0	3			KEI
1978 11 03.83		11.3:		22	L		60	3.0	2/			STU
1978 11 03.94		12.0	P	15	R	4						WAT
1978 11 25.86		13.6	P	15	R	4						WAT

PERIODIC COMET CHERNYKH (1978 IV = 1977L)

DATE (UT)	MAG.	R	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1977 09 18.01	11.8:		22	L		60 &	2.5				STU

PERIODIC COMET SCHWASSMANN-WACHMANN 1 (1974 II)

DATE (UT)	MAG.	R	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1979 01 03.58	14	P	16	S	3		2	1/			NAK03
1979 02 02.63	14	P	15	S			1				OKU
1979 02 03.64	13.5	P	16	S	3		1.5	7			WAS
1979 02 04.67	13.3	A	20	L		84	0.3	7			NAK
1979 02 15.47	12.8		20	L		84	0.6	5			NAK
1979 02 27.63	13.2		20	L		84	>0.5	1			NAK
1979 12 16.68	11.0	P	16	L			2.5	5			NAK03
1979 12 20.68	11.3	P	16	L			2	3			NAK03
1979 12 22.68	10.1	P	16	L			3	5			NAK03

PERIODIC COMET KLEMOLA (1976 X = 1976J)

DATE (UT)	MAG.	R	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1977 08 21.93	11	:	26	L		120 &	3	5/			HUR
1977 08 19.94	12.5:		26	L		120		8/			HUR
1977 08 22.93	11	:	26	L		120					HUR

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