

Table of Contents

SECTION 1: SOLAR ECLIPSE FUNDAMENTALS.....	7
1.1 INTRODUCTION	7
1.2 CLASSIFICATION OF SOLAR ECLIPSES	7
1.3 VISUAL APPEARANCE OF PARTIAL SOLAR ECLIPSES	8
1.4 VISUAL APPEARANCE OF ANNULAR SOLAR ECLIPSES	9
1.5 VISUAL APPEARANCE OF TOTAL SOLAR ECLIPSE.....	10
1.6 SAFELY OBSERVING SOLAR ECLIPSES.....	12
1.7 CENTRAL LINE AND DURATION OF TOTALITY	13
SECTION 2: SOLAR ECLIPSE PREDICTIONS.....	15
2.1 SOLAR ECLIPSE CONTACTS	15
2.2 MEAN LUNAR RADIUS	16
2.3 SOLAR AND LUNAR COORDINATES.....	17
2.4 SECULAR ACCELERATION OF THE MOON	17
2.5 MEASUREMENT OF TIME	18
2.6 ΔT (DELTA T).....	19
2.7 POLYNOMIAL EXPRESSIONS FOR ΔT	20
2.8 DATE FORMAT	21
2.9 CALENDAR DATE	22
2.10 STATISTICAL COMPARISON WITH FIVE MILLENNIUM CANON OF SOLAR ECLIPSES.....	22
2.11 MAP ACCURACY.....	23
SECTION 3: SOLAR ECLIPSE STATISTICS.....	25
3.1 STATISTICAL DISTRIBUTION OF ECLIPSE TYPES	25
3.2 DISTRIBUTION OF ECLIPSE TYPES BY CENTURY.....	27
3.3 DISTRIBUTION OF ECLIPSE TYPES BY MONTH.....	27
3.4 ECLIPSE FREQUENCY AND THE CALENDAR YEAR.....	28
3.5 EXTREMES IN ECLIPSE MAGNITUDE: PARTIAL ECLIPSES	30
3.6 EXTREMES IN ECLIPSE MAGNITUDE: ANNULAR ECLIPSES	31
3.7 EXTREMES IN ECLIPSE MAGNITUDE: HYBRID ECLIPSES.....	32
3.8 EXTREMES IN ECLIPSE MAGNITUDE: TOTAL ECLIPSES	32
3.9 GREATEST CENTRAL DURATION: ANNULAR ECLIPSES	33
3.10 GREATEST CENTRAL DURATION: TOTAL ECLIPSES	34
3.11 GREATEST CENTRAL DURATION: HYBRID ECLIPSES	34
3.12 THEORETICAL MAXIMUM DURATION OF ANNULARITY.....	35
3.13 THEORETICAL MAXIMUM DURATION OF TOTALITY	35
3.14 ECLIPSE DUOS	36
3.15 ECLIPSES DUOS IN ONE CALENDAR MONTH	36
3.16 ECLIPSE SEASONS	37
3.17 QUINCENA	38
3.18 QUINCENA COMBINATIONS WITH PARTIAL SOLAR ECLIPSES	38
3.19 QUINCENA COMBINATIONS WITH ANNULAR SOLAR ECLIPSES.....	39
3.20 QUINCENA COMBINATIONS WITH TOTAL SOLAR ECLIPSES.....	39
3.21 QUINCENA COMBINATIONS WITH HYBRID SOLAR ECLIPSES.....	40
SECTION 4: EXPLANATION OF SOLAR ECLIPSE CATALOG IN APPENDIX A	41
4.1 INTRODUCTION	41
4.2 CAT NUM (CATALOG NUMBER).....	41
4.3 CANON PLATE	41

4.4 CALENDAR DATE	41
4.5 TD OF GREATEST ECLIPSE (TERRESTRIAL DYNAMICAL TIME OF GREATEST ECLIPSE).....	41
4.6 ΔT (DELTA T).....	42
4.7 LUNA NUM (LUNATION NUMBER).....	42
4.8 SAROS NUM (SAROS SERIES NUMBER).....	42
4.9 ECL TYPE (SOLAR ECLIPSE TYPE)	42
4.10 QLE (QUINCENA LUNAR ECLIPSE PARAMETER).....	43
4.11 GAMMA	43
4.12 ECL MAG (ECLIPSE MAGNITUDE)	43
4.13 LAT LONG (LATITUDE AND LONGITUDE).....	44
4.14 SUN ALT (ALTITUDE OF SUN)	44
4.15 SUN AZM (AZIMUTH OF SUN)	44
4.16 PATH WIDTH	44
4.17 CENTRAL LINE DUR (CENTRAL LINE DURATION)	44
4.18 ECLIPSEWISE.COM AND SOLAR ECLIPSE CATALOG.....	44
SECTION 5: EXPLANATION OF SOLAR ECLIPSE MAPS IN APPENDIX B.....	45
5.1 INTRODUCTION	45
5.2 SOLAR ECLIPSE TYPE.....	46
5.3 SAROS SERIES NUMBER.....	47
5.4 NODE.....	47
5.5 CALENDAR DATE	47
5.6 GREATEST ECLIPSE	47
5.7 ΔT (DELTA T).....	47
5.8 GAMMA	48
5.9 ALTITUDE OF SUN	48
5.10 DURATION OF CENTRAL ECLIPSE	48
5.11 ECLIPSE MAGNITUDE	48
REFERENCES.....	49
APPENDIX A.....	51
SOLAR ECLIPSE CATALOG: 1501 TO 2500	51
KEY TO SOLAR ECLIPSE CATALOG	52
APPENDIX B.....	93
SOLAR ECLIPSE MAPS: 1501 TO 2500.....	93
KEY TO SOLAR ECLIPSE MAPS.....	94