

# NASA Technical Memorandum 87775

NASA-TM-87775 19860015126

## World Atlas of Large Optical Telescopes

*Second Edition*

Stephen Paul Meszaros

September 1986

**FOR REFERENCE**

**NOT TO BE TAKEN FROM THIS ROOM**

**LIBRARY COPY**

SEP 22 1986

LANGLEY RESEARCH CENTER  
LIBRARY, NASA  
HAMPTON VIRGINIA

**NASA**



NF01645

NASA Technical Memorandum 87775

# World Atlas of Large Optical Telescopes

*Second Edition*

Stephen Paul Meszaros  
*Goddard Space Flight Center  
Greenbelt, Maryland*

**NASA**  
National Aeronautics  
and Space Administration  
**Scientific and Technical  
Information Branch**

1986



## CONTENTS

	<u>Page</u>
Abstract .....	i
Author's Note .....	iv
Introduction .....	1
The World's Largest Telescopes .....	2
Guide to the Atlas .....	4
Part I: The Maps .....	5
Major European Observatories .....	6
Major USSR Observatories .....	8
Major Asian Observatories .....	10
Major African Observatories .....	12
Major Observatories of Australia & The Pacific .....	14
Major South American Observatories .....	16
Major North American Observatories .....	18
Major United States Observatories .....	20
Part II: The Tables .....	22
Large European Telescopes .....	23
Large USSR Telescopes .....	26
Large Asian Telescopes .....	27
Large African Telescopes .....	28
Large Telescopes of Australia & The Pacific .....	29
Large South American Telescopes .....	30
Large North American Telescopes .....	32
Notes .....	36
References .....	38

#### AUTHOR'S NOTE

The information on the various telescopes in this atlas was obtained primarily through publications. Consequently the accuracy of the material presented is almost entirely dependent upon the sources selected. Where conflicts arose between sources, the most up-to-date and/or reliable source (in the author's opinion) was used. The major publications consulted are listed in the "References" section on page 38.

The author would appreciate any corrections and/or additions to the information in this atlas which the reader may have. Please send these to: Stephen P. Meszaros, Code 253.3, Goddard Space Flight Center, Greenbelt, Maryland 20771.

## INTRODUCTION

The purpose of this atlas is to bring together in one place a series of maps and tables giving locations and information on the world's largest telescopes. This edition updates an earlier atlas of the same name (see "References"). A secondary purpose is to show prime observatory locations for the possible establishment of future new observatories.

Only optical telescopes engaged in astronomical research are considered in this atlas. Telescopes of mirror or lens diameter of one meter (approximately 39-inches) and larger are listed. Observatories having one or more telescopes in this size range are referred to as "Major Observatories" in the atlas. (Smaller telescopes are often present at these observatories too.) Generally, the information presented here represents the world astronomical instrument situation as of early 1986.

"Prime Observatory Locations" are also shown on the atlas maps. These are areas with a combination of both aridity and medium elevation, factors which are very beneficial to telescopic observation. Aridity usually suggests clear skies—a necessity for optical telescopes. Medium elevation places observatories above as much of the earth's moving atmosphere as possible in order to provide steady astronomical seeing (but not so high as to put them into extreme climatic regions).

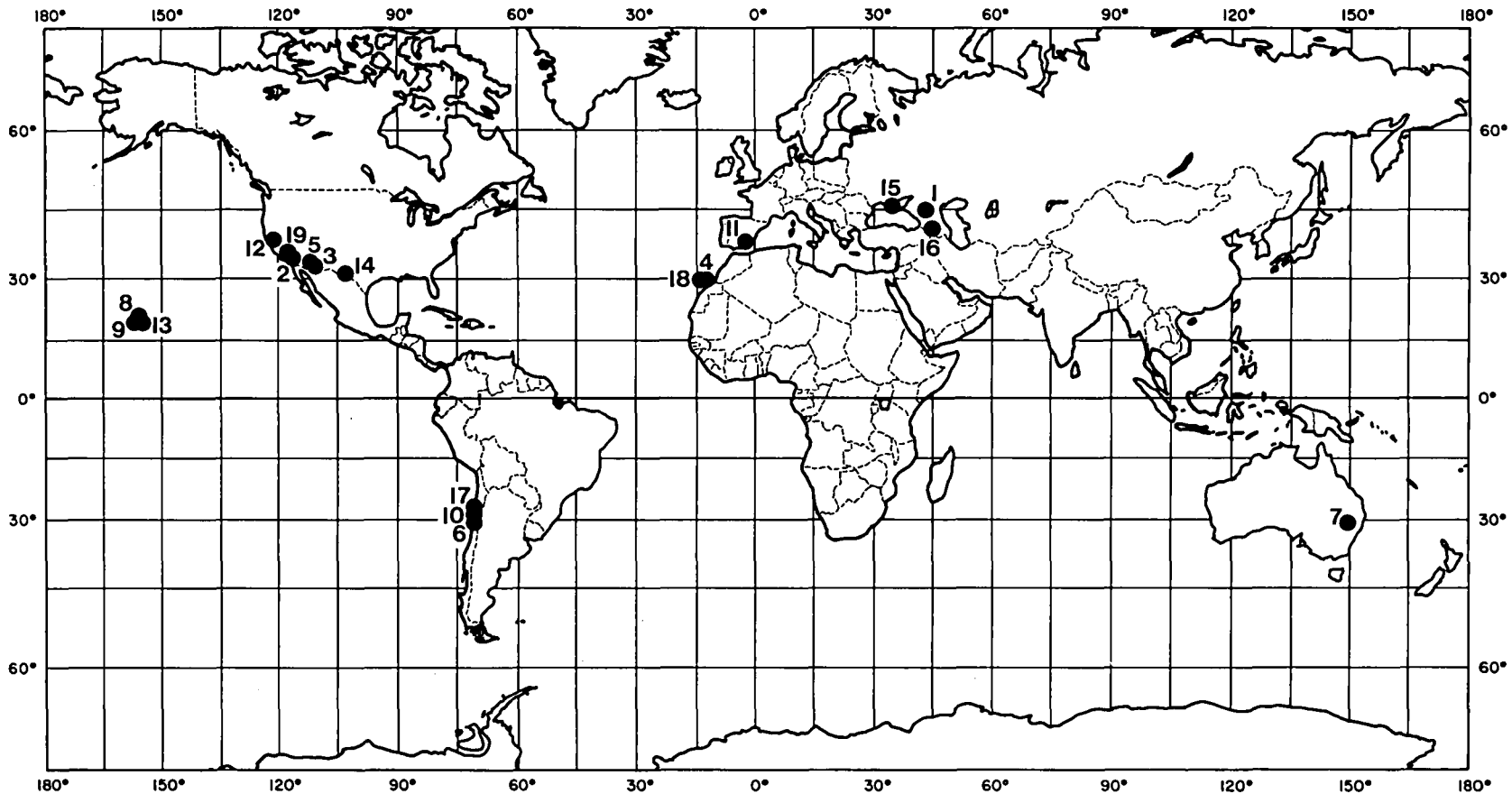
The first map lists the 19 largest telescopes in the world and shows their general locations.

**THE WORLD'S LARGEST TELESCOPES**  
(Mirror Diameter 2.5 Meters (100 Inches) and Greater)

Map No.	Size	Location	Observatory	Name
1	6.0m (236")	USSR	Special Astrophysical	—
2	5.1m (200")	US	Mt. Palomar	Hale
3	4.5m (176")	US	Whipple	MMT <sup>1</sup>
4	4.2m (165")	Canary Is.	Roque de los Muchachos	Herschel
5	4.0m (158")	US	Kitt Peak National	Mayall
6	4.0m (158")	Chile	Cerro Tololo	—
7	3.9m (153")	Australia	Anglo-Australian	AAT <sup>2</sup>
8	3.8m (150")	Hawaii	Mauna Kea	UKIRT <sup>3</sup>
9	3.6m (142")	Hawaii	Mauna Kea	CFHT <sup>4</sup>
10	3.6m (142")	Chile	European Southern	—
11	3.5m (138")	Spain	German-Spanish	—
12	3.0m (120")	US	Lick	Shane
13	3.0m (120")	Hawaii	Mauna Kea	NASA-IRTF <sup>5</sup>
14	2.7m (107")	US	McDonald	—
15	2.6m (102")	USSR	Crimean Astrophysical	Shajn
16	2.6m (102")	USSR	Byurakan	—
17	2.5m (101")	Chile	Las Campanas	Du Pont
18	2.5m (100")	Canary Is.	Roque de los Muchachos	Isaac Newton
19	2.5m (100")	US	Mt. Wilson	Hooker

1. Multiple Mirror Telescope: Six 1.8m (72") Mirrors Combined
2. Anglo-Australian Telescope
3. United Kingdom Infrared Telescope
4. Canada-France-Hawaii Telescope
5. NASA-Infrared Telescope Facility

# THE WORLD'S LARGEST TELESCOPES



CARTOGRAPHER: STEPHEN MESZAROS  
NASA/GSFC: 1986



## GUIDE TO THE ATLAS

### Part I: The Maps

The following maps cover continent-sized regions of the earth's surface. Major Observatory locations are indicated by numbered triangles, the numbers referring to the accompanying list of observatories. Prime Observatory Locations are delineated on the maps by a hachured pattern. This pattern shows areas with a combination of less than 51 centimeters (20-inches) of rainfall per year and an elevation range between approximately 1000 and 4000 meters (3000 to 13,000 feet).

### Part II: The Tables

The tables contain the following information:

Observatory – the observatory name and/or the name of the sponsoring institution.

Location – The observatory location, either the name of the mountain or a nearby town/city.

Type – the telescope type;

“Re” indicates reflecting telescope,

“Rf” refracting telescope,

“S” Schmidt telescope,

“Sol” solar telescope,

“IR” infrared telescope, and

“MMT” multiple-mirror telescope.

Size – the telescope mirror or lens diameter in meters and inches. (For Schmidt telescopes both the mirror and correcting lens diameters are given.)

Dates – the year the telescope started operation.

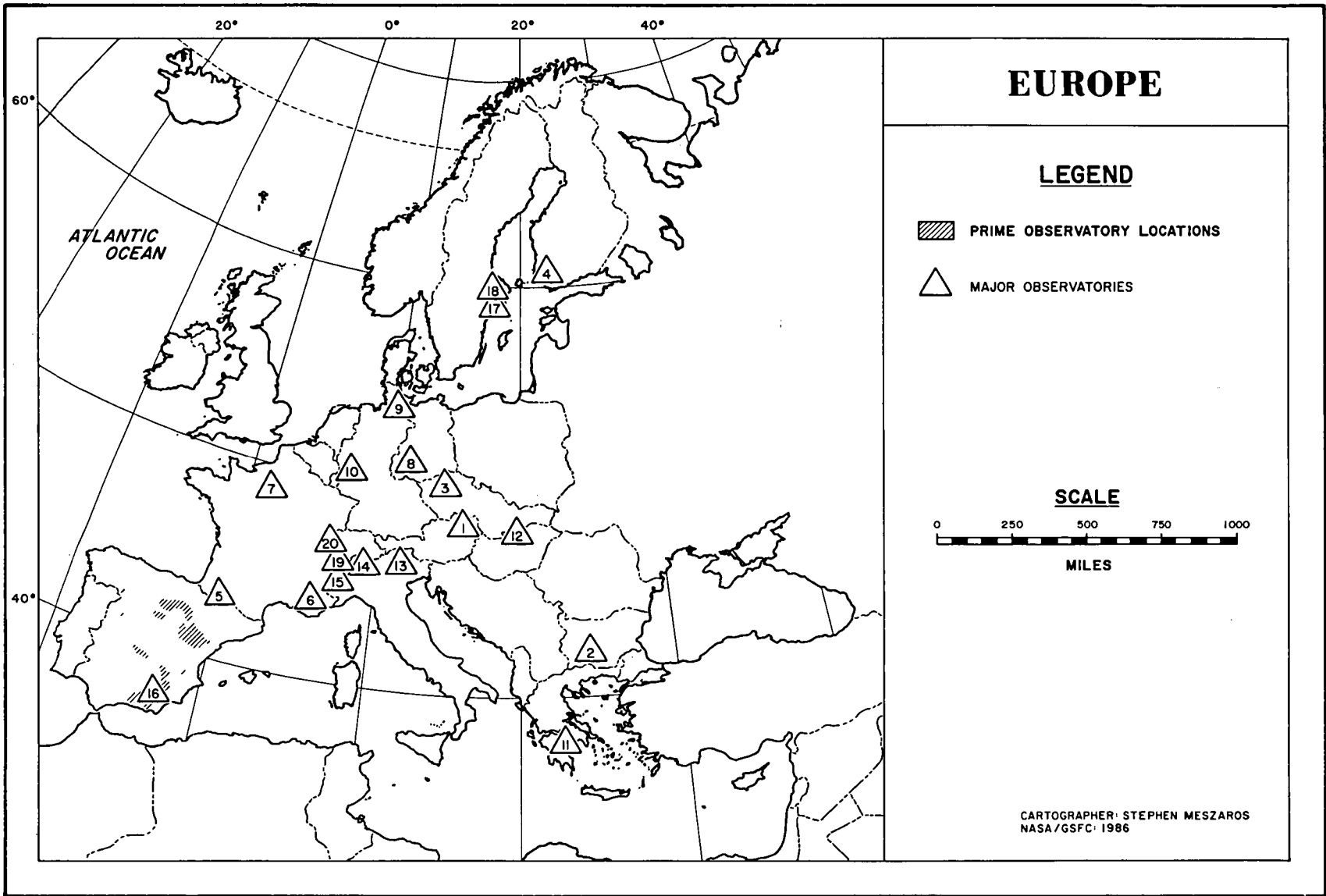
Notes – note numbers indicate additional information supplied in the “Notes” section at the end of the atlas, beginning on page 36.

Any information that is questionable or is lacking altogether is indicated by a question mark (?).

**PART I: THE MAPS**

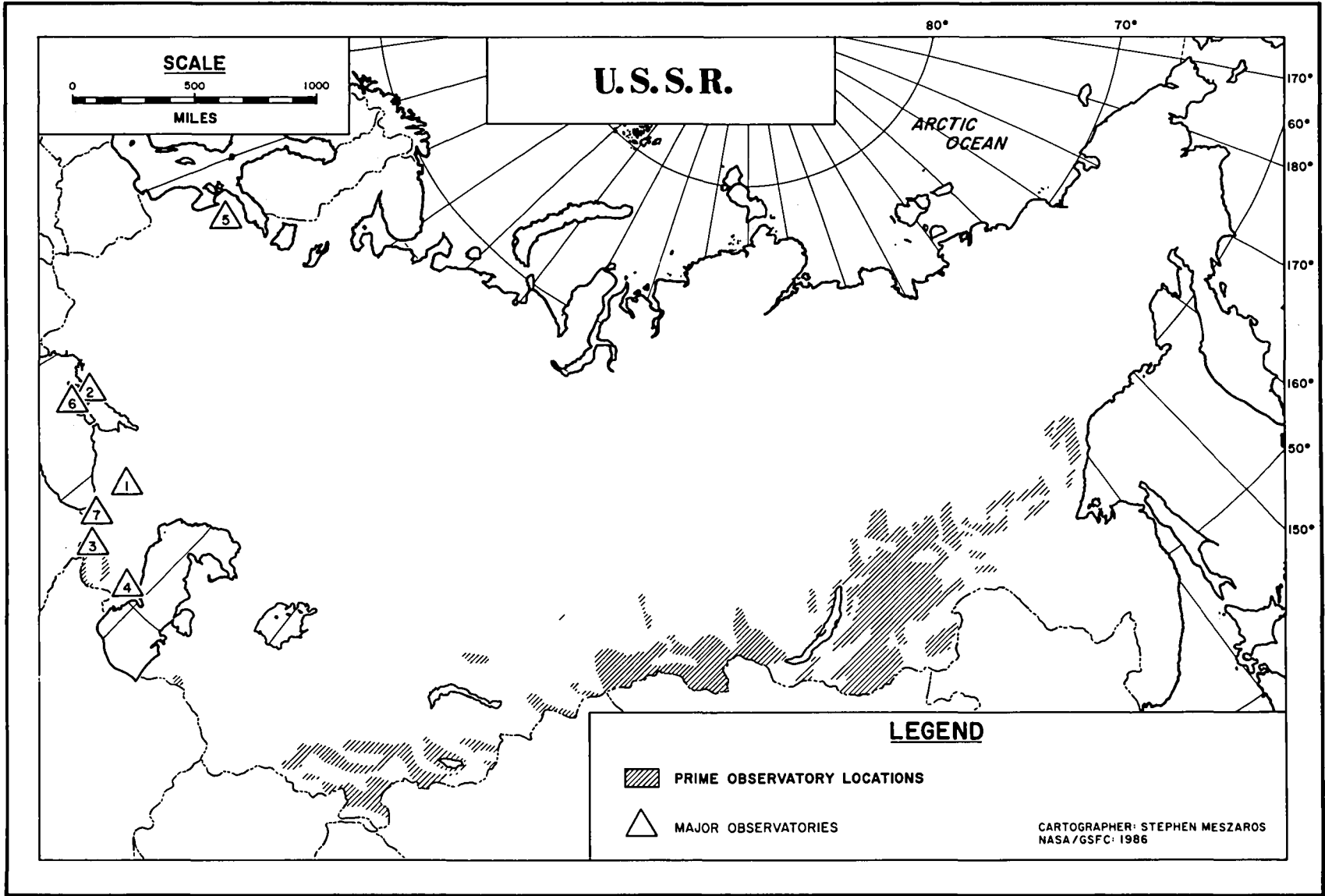
## MAJOR EUROPEAN OBSERVATORIES

<b>Map Number</b>	<b>Observatory</b>	<b>Location</b>
1	Figl Astrophysical	Austria
2	Mt. Rozhen	Bulgaria
3	Ondrejov	Czechoslovakia
4	Turku	Finland
5	Pic du Midi	France
6	Haute Provence	France
7	Paris	France
8	Schwarzschild	Germany
9	Hamburg	Germany
10	Astronomical Institute	Germany
11	National	Greece
12	Konkoly	Hungary
13	Astrophysical	Italy
14	Milan-Merate	Italy
15	Turin	Italy
16	German-Spanish	Spain
17	Stockholm	Sweden
18	Uppsala	Sweden
19	IR Astronomy	Switzerland
20	Geneva	Switzerland



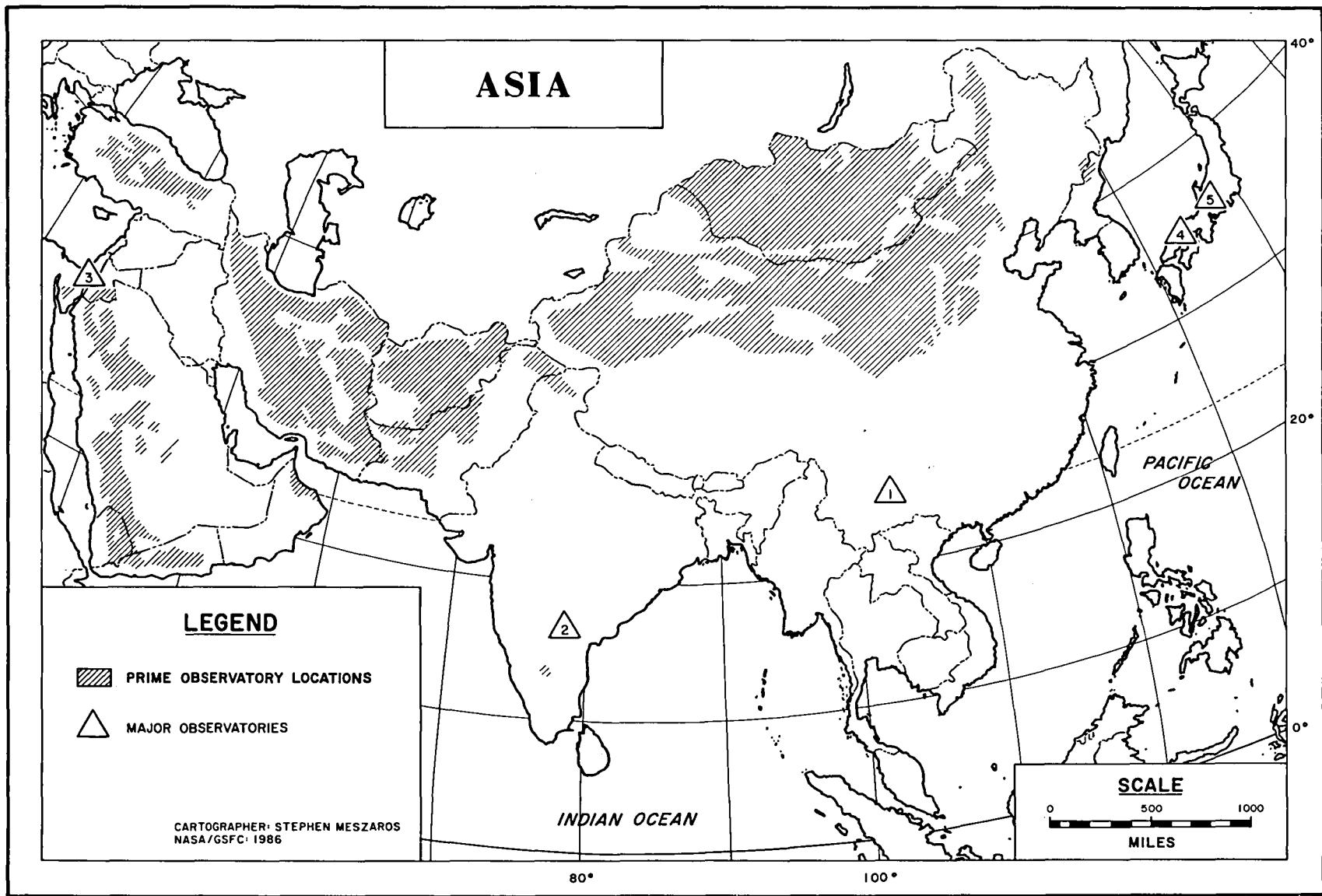
## MAJOR USSR OBSERVATORIES

<b>Map Number</b>	<b>Observatory</b>	<b>Location</b>
1	Special Astrophysical	Zelenchujskaya
2	Crimean Astrophysical	Crimea
3	Byurakan	Soviet Armenia
4	Shemakha Astrophysical	Azerbaijan
5	Struve Astrophysical	Estonian SSR
6	Sternberg Astronomical	Crimea
7	Abastumani Astrophysical	Georgian SSR



## MAJOR ASIAN OBSERVATORIES

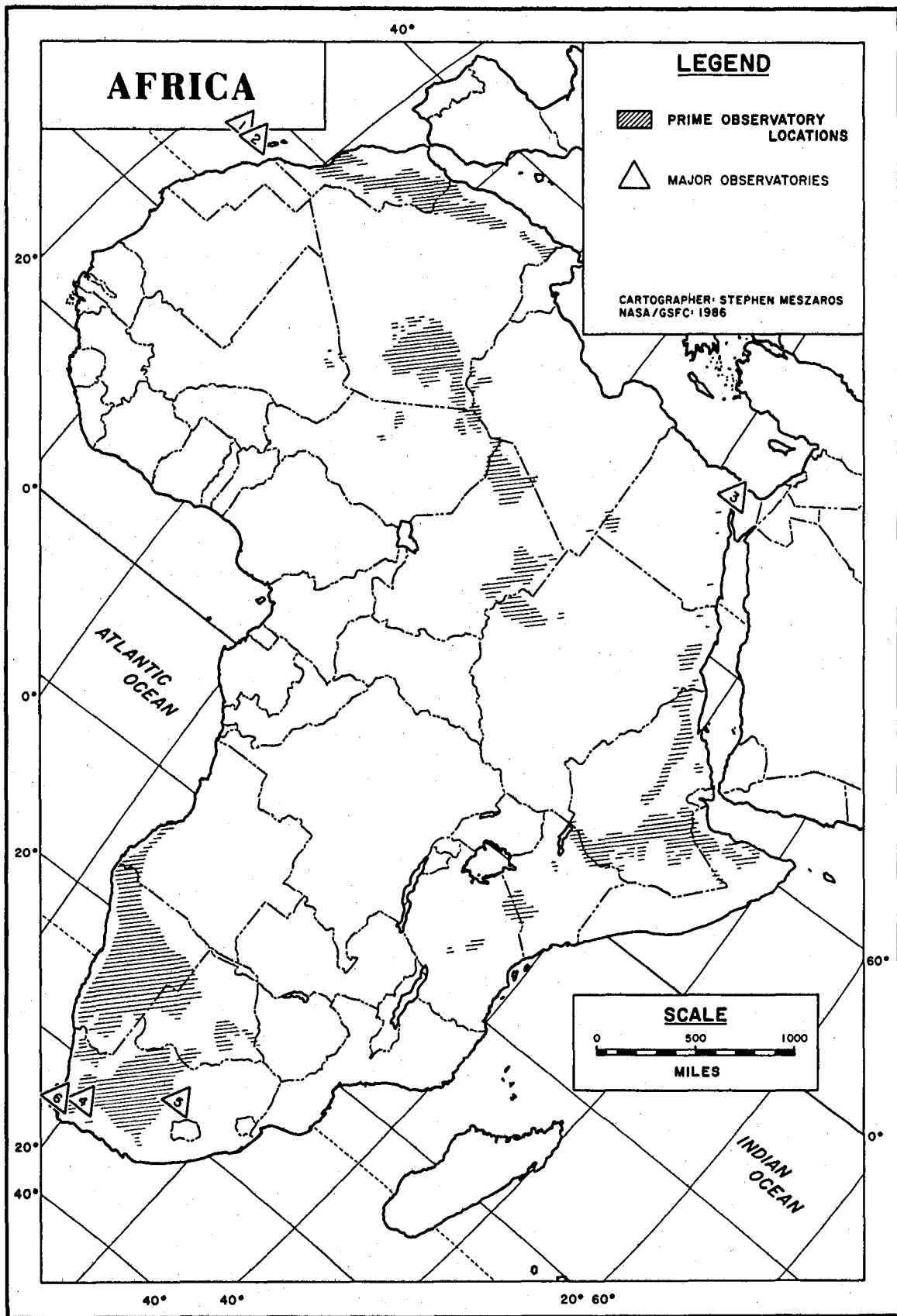
<b>Map Number</b>	<b>Observatory</b>	<b>Location</b>
1	Yunnan	China
2	Nizamiah	India
3	Wise	Israel
4	Okayama Astrophysical	Japan
5	Kiso	Japan





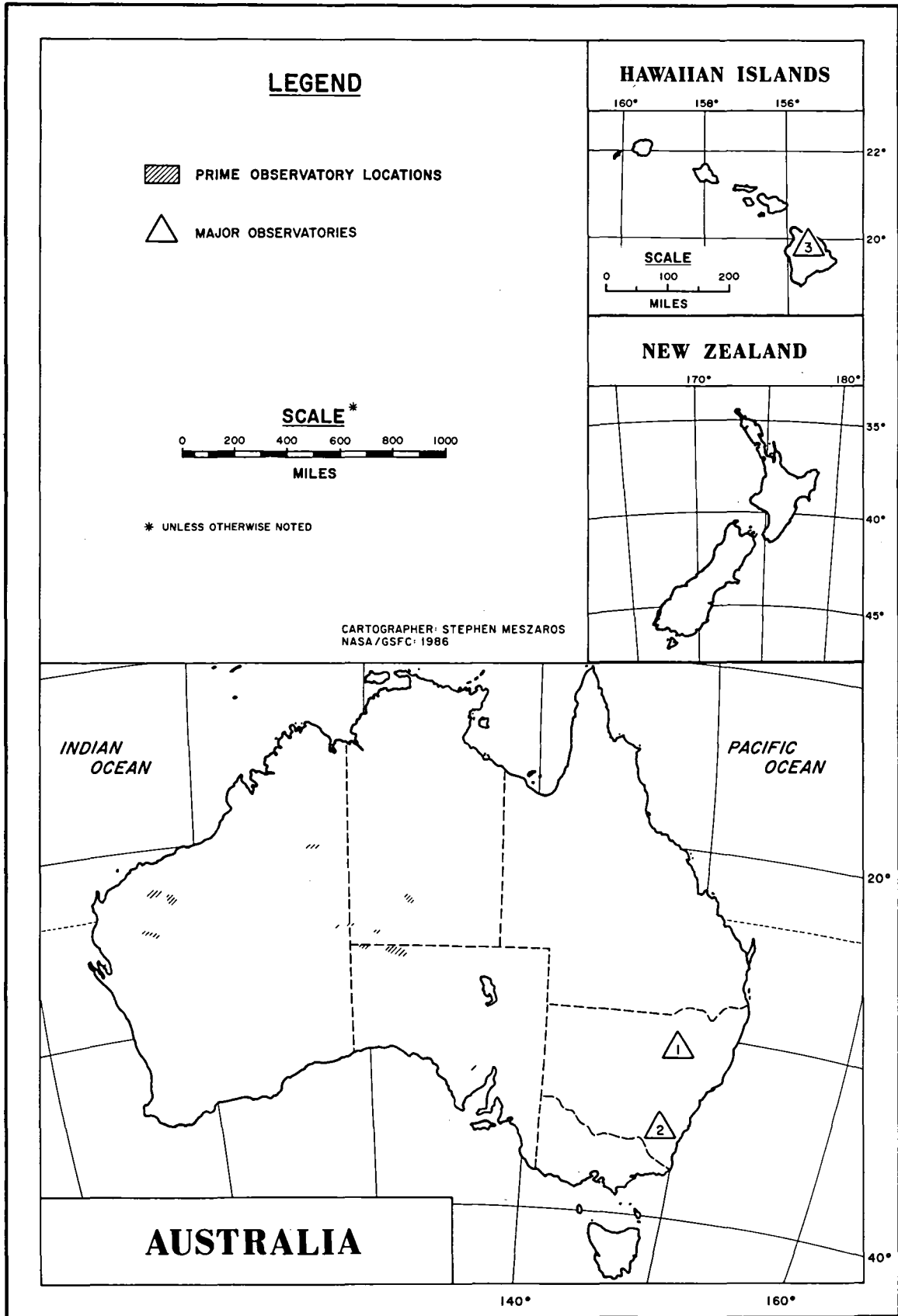
## MAJOR AFRICAN OBSERVATORIES

<b>Map Number</b>	<b>Observatory</b>	<b>Location</b>
1	Roque de los Muchachos	Canary Islands
2	Del Teide	Canary Islands
3	Helwan	Egypt
4	South African Astronomical	South Africa
5	Boyden Station	South Africa
6	Royal	South Africa



## MAJOR OBSERVATORIES OF AUSTRALIA & THE PACIFIC

<b>Map Number</b>	<b>Observatory</b>	<b>Location</b>
1	Siding Spring	Australia
2	Mt. Stromlo	Australia
3	Mauna Kea	Hawaii



## MAJOR SOUTH AMERICAN OBSERVATORIES

<b>Map Number</b>	<b>Observatory</b>	<b>Location</b>
1	Univ. de La Plata	Argentina
2	National	Argentina
3	National	Brazil
4	Inter-American	Chile
5	European Southern	Chile
6	Carnegie Southern	Chile
7	Astronomical Investigation	Venezuela

# SOUTH AMERICA





## MAJOR NORTH AMERICAN OBSERVATORIES

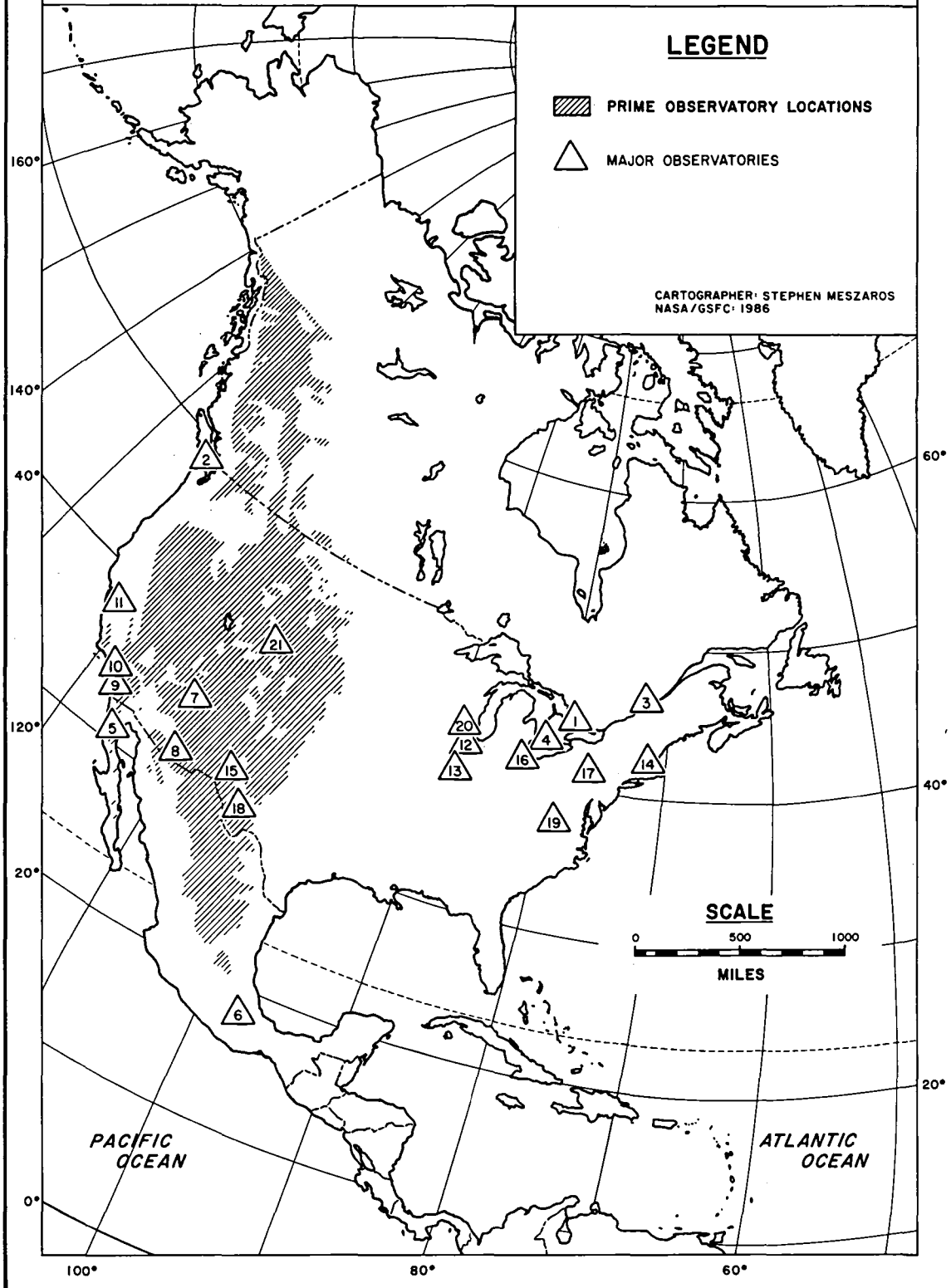
<b>Map Number</b>	<b>Observatory</b>	<b>Location</b>
1	David Dunlap	Canada
2	Dominion Astrophysical	Canada
3	Astronomical	Canada
4	Western Ontario	Canada
5	National Astronomical	Mexico
6	National Astrophysical	Mexico
7	Lowell, Lowell-Ohio & U.S. Naval	United States
8	Mt. Lemmon, Catalina, Kitt Peak, Steward, McGraw-Hill & Whipple	United States
9	Mt. Palomar	United States
10	Mt. Wilson	United States
11	Lick	United States
12	Lindheimer	United States
13	Prairie	United States
14	Agassiz Station	United States
15	Sacramento Peak	United States
16	Ritter	United States
17	Penn State Univ.	United States
18	McDonald	United States
19	McCormick	United States
20	Yerkes	United States
21	Wyoming Infrared	United States

# NORTH AMERICA

## LEGEND

-  PRIME OBSERVATORY LOCATIONS
-  MAJOR OBSERVATORIES

CARTOGRAPHER: STEPHEN MESZAROS  
NASA/GSFC: 1986



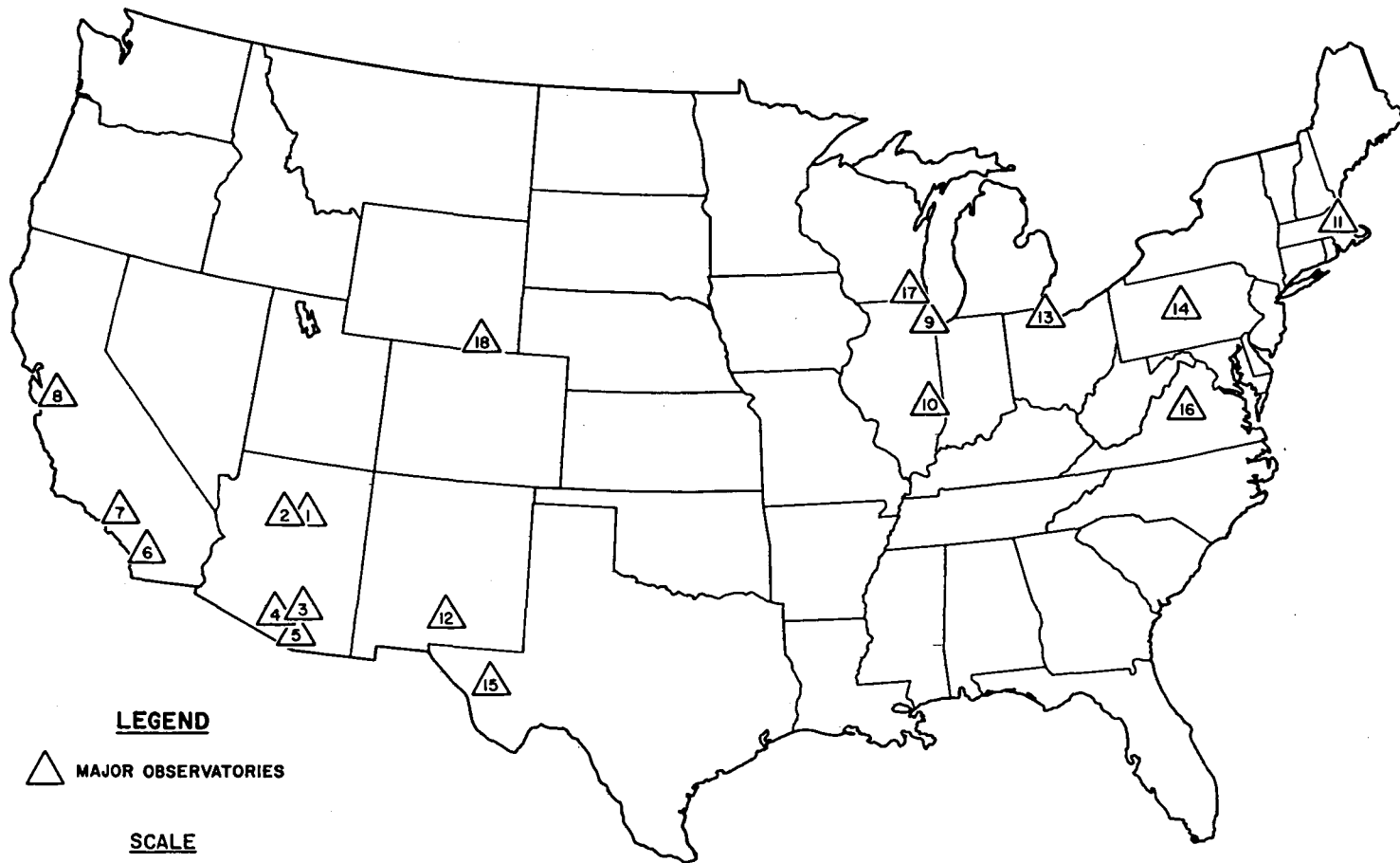


## MAJOR UNITED STATES OBSERVATORIES\*

Map Number	Observatory	Location
1	Lowell & Lowell-Ohio	Arizona
2	U.S. Naval	Arizona
3	Mt. Lemmon & Catalina	Arizona
4	Kitt Peak, Steward & McGraw-Hill	Arizona
5	Whipple	Arizona
6	Mt. Palomar	California
7	Mt. Wilson	California
8	Lick	California
9	Lindheimer	Illinois
10	Prairie	Illinois
11	Agassiz Station	Massachusetts
12	Sacramento Peak	New Mexico
13	Ritter	Ohio
14	Penn State Univ.	Pennsylvania
15	McDonald	Texas
16	McCormick	Virginia
17	Yerkes	Wisconsin
18	Wyoming Infrared	Wyoming

\*Excluding Hawaii (see Hawaii under "Australia & the Pacific")

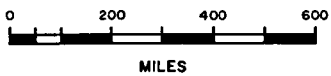
# MAJOR UNITED STATES OBSERVATORIES



## LEGEND

△ MAJOR OBSERVATORIES

## SCALE



CARTOGRAPHER: STEPHEN MESZAROS  
NASA/GSFC: 1986

**PART II: THE TABLES**

## LARGE EUROPEAN TELESCOPES\*

Observatory	Location	Type	Size	Date	Notes
(European Southern Observatory—see “South America”)					
<b>AUSTRIA</b>					
Figl Astrophysical	Vienna	Re	1.5m (60")	1969	
<b>BULGARIA</b>					
Mt. Rozhen	Mt. Rozhen	Re	2.0m (79")	1980?	
<b>CZECHOSLOVAKIA</b>					
Ondrejov	Ondrejov	Re	2.0m (79")	1967	
<b>ENGLAND</b>					
(Anglo-Australian Telescope—see “Australia” under “Australia & the Pacific”)					
(“UKIRT” Telescope—see “Hawaii” under “Australia & the Pacific”)					
(Newton and Herschel Telescopes—see “Canary Islands” under “Africa”)					
<b>FINLAND</b>					
Turku?	Turku	Re	1.0m (39")	?	
<b>FRANCE</b>					
(Canada-France-Hawaii Telescope—see “Hawaii” under “Australia & the Pacific”)					
Pic du Midi (Univ. of Toulouse)	Bogueres de Bigorre	Re	2.0m (79")	1979	
Pic du Midi (Univ. of Toulouse)	Bogueres de Bigorre	Re	1.1m (43")	1964	
Haute Provence	Saint Michel	Re	1.9m (76")	1958	
Haute Provence	Saint Michel	Re	1.5m (60")	1969	
Haute Provence	Saint Michel	Re	1.2m (47")	1943	

\*Excluding the USSR

**LARGE EUROPEAN TELESCOPES (Continued)**

<b>Observatory</b>	<b>Location</b>	<b>Type</b>	<b>Size</b>	<b>Date</b>	<b>Notes</b>
<b>FRANCE (Continued)</b>					
Haute Provence	Saint Michel	Re	1.0m (39")	?	
Paris	Meudon	Re	1.0m (39")	1893	
<b>GERMANY</b> (German-Spanish Astronomical Observatory—see "Spain")					
Schwarzschild	Tautenburg	S	1.3m/2.0m (53"/79")	1960	(1)
Hamburg	Bergedorf	Re	1.2m (47")	?	
Astronomical Institute	Daun	Re	1.1m (43")	?	
<b>GREECE</b>					
National (of Athens)	Kiaton	Re	1.2m (48")	1975	
<b>HUNGARY</b>					
Konkoly	Piszkesteto	Re	1.0m (39")	1974	
<b>ITALY</b> (Center for Infrared Astronomy—see "Switzerland")					
Astrophysical (of Padua Univ.)	Asiago	Re	1.8m (72")	1973	(2)
Astrophysical (of Padua Univ.)	Asiago	Re	1.2m (48")	1942	
Milan-Merate	Merate, Como	Re	1.4m (54")	1968	
Milan-Merate	Merate, Como	Re	1.0m (39")	1929	
Turin	Pino Torinese	Re	1.0m (41")	1974	

### LARGE EUROPEAN TELESCOPES (Continued)

Observatory	Location	Type	Size	Date	Notes
<b>SPAIN</b>					
German-Spanish Astronomical	Calar Alto	Re	3.5m (138")	?	
German-Spanish Astronomical	Calar Alto	Re	2.2m (88")	1979	
German-Spanish Astronomical	Calar Alto	Re	1.5m (60")	1979	
German-Spanish Astronomical	Calar Alto	Re	1.2m (48")	1975	
German-Spanish Astronomical	Calar Alto	S	0.8m/1.2m (32"/48")	?	
<b>SWEDEN</b>					
Stockholm	Saltsjobaden	Re	1.0m (40")	1931	
Uppsala	Bro	S	1.0m/1.3m (39"/53")	1962	
<b>SWITZERLAND</b>					
Center for IR Astronomy	Gornergrat	IR	1.5m (60")	1980	(3)
Geneva	Geneva	Re	1.0m (40")	1927	

### LARGE USSR TELESCOPES

Observatory	Location	Type	Size	Date	Notes
Special Astrophysical	Zelenchukskaya	Re	6.0m (236")	1976	(4)
Crimean Astrophysical	Simeiz	Re	2.6m (102")	1961	(5)
Crimean Astrophysical	Simeiz	Re	1.2m (48")	1952	
Byurakan	Yerevan	Re	2.6m (102")	1976	
Byurakan	Yerevan	S	1.0m/1.3m (40"/52")	1960	
Shemakha Astrophysical	Shemakha	Re	2.0m (79")	1967	
Struve Astrophysical	Tartu	Re	1.5m (60")	1975	
Sternberg Astronomical Institute	Simeiz	Re	1.3m (50")	1960	
Abastumani Astrophysical	Mt. Kanobili	Re	1.3m (50")	?	

### LARGE ASIAN TELESCOPES\*

Observatory	Location	Type	Size	Date	Notes
<b>CHINA</b>					
Yunnan	Kunming	Re	1.0m (39")	?	
<b>INDIA</b>					
Nizamiah (Osmania Univ.)	Hyderabad	Re	1.2m (48")	1962	
<b>ISRAEL</b>					
Wise (Tel Aviv Univ.)	Mt. Zin	Re	1.0m (40")	1971	
<b>JAPAN</b>					
Okayama Astrophysical (Univ. of Tokyo)	Kamogata	Re	1.9m (74")	1960	
Kiso	Kiso Mts.	S	1.1m/1.5m (42"/59")	1974	

\*Excluding the USSR.



## LARGE AFRICAN TELESCOPES

Observatory	Location	Type	Size	Date	Notes
<b>CANARY ISLANDS</b>					
Roque de los Muchachos	La Palma	Re	4.2m (165")	1986?	(6)
Roque de los Muchachos	La Palma	Re	2.5m (100")	1982	(7)
Roque de los Muchachos	La Palma	Re	1.0m (39")	1983	(8)
Del Teide	Tenerife	IR	1.5m (60")	1972	
<b>EGYPT</b>					
Helwan	Helwan	Re	1.9m (74")	1960	
<b>SOUTH AFRICA</b>					
South African Astronomical	Sutherland	Re	1.9m (74")	1974?	
South African Astronomical	Sutherland	Re	1.0m (39")	1973	
Boyden Station	Bloemfontein	Re	1.5m (60")	1930	
Royal	Cape of Good Hope	Re	1.0m (40")	1961	

## LARGE TELESCOPES OF AUSTRALIA & THE PACIFIC

Observatory	Location	Type	Size	Date	Notes
<b>AUSTRALIA</b>					
Siding Spring	Coonabarabran, New South Wales	Re	3.9m (153")	1975	(9)
Siding Spring	Coonabarabran, New South Wales	Re	2.3m (90")	1984	
Siding Spring	Coonabarabran, New South Wales	S	1.2m/1.8m (48"/72")	1973	(10)
Siding Spring	Coonabarabran, New South Wales	Re	1.0m (40")	1964	
Mt. Stromlo	Canberra	Re	1.9m (74")	1955	
Mt. Stromlo	Canberra	Re	1.3m (50")	1954	
<b>HAWAII</b>					
Mauna Kea (UKIRT)	Mauna Kea	IR	3.8m (150")	1978	(11)
Mauna Kea (CFHT)	Mauna Kea	Re	3.6m (142")	1979	(12)
Mauna Kea (NASA)	Mauna Kea	IR	3.0m (120")	1979	(13)
Mauna Kea (Univ. of Hawaii)	Mauna Kea	Re	2.2m (88")	1970	

## LARGE SOUTH AMERICAN TELESCOPES

Observatory	Location	Type	Size	Date	Notes
<b>ARGENTINA</b>					
Univ. de La Plata?	Mendoza	Re	2.1m (84")	?	
National	Bosque Alegre	Re	1.5m (61")	1942	
<b>BRAZIL</b>					
National of Rio de Janeiro	Brazopolis	Re	1.6m (63")	1979?	
<b>CHILE</b>					
Inter-American	Cerro Tololo	Re	4.0m (158")	1976	(14)
Inter-American	Cerro Tololo	Re	1.5m (60")	1967?	
Inter-American	Cerro Tololo	Re	1.0m (40")	1973	
European Southern	Cerro La Silla	Re	3.6m (142")	1976	(15)
European Southern	Cerro La Silla	Re	3.6m (142")	1986?	(16)
European Southern	Cerro La Silla	Re	2.2m (88")	1985?	
European Southern	Cerro La Silla	Re	1.5m (59")	1968	
European Southern	Cerro La Silla	Re	1.4m (54")	1979	
European Southern	Cerro La Silla	Re	1.0m (39")	1966	
European Southern	Cerro La Silla	S	1.0m/1.6m (39"/64")	1969	
Carnegie Southern	Cerro Las Campanas	Re	2.5m (101")	1976	(17)

**LARGE SOUTH AMERICAN TELESCOPES (Continued)**

<b>Observatory</b>	<b>Location</b>	<b>Type</b>	<b>Size</b>	<b>Date</b>	<b>Notes</b>
<b>CHILE (Continued)</b>					
Carnegie Southern	Cerro Las Campanas	Re	1.0m (40")	1971	
<b>VENEZUELA</b>					
Astronomical Investigation	Llano Del Hato	Re	1.0m (39")	1975?	
Astronomical Investigation	Llano Del Hato	S	1.0m/1.5m (39"/59")	1975?	

## LARGE NORTH AMERICAN TELESCOPES

Observatory	Location	Type	Size	Date	Notes
<b>CANADA</b>					
(Canada-France-Hawaii Telescope—see "Hawaii" under "Australia & The Pacific")					
David Dunlap (Univ. of Toronto)	Richmond Hill, Ontario	Re	1.9m (74")	1935	
Dominion Astrophysical	Victoria, British Columbia	Re	1.9m (73")	1918	
Dominion Astrophysical	Victoria, British Columbia	Re	1.2m (48")	1961	
Astronomical of Quebec (Univ. of Montreal)	Mt. Megantic	Re	1.6m (64")	1978	
Univ. of Western Ontario	London, Ontario	Re	1.2m (48")	1968	
<b>MEXICO</b>					
National Astronomical	Baja, California	Re	2.1m (84")	1979	
National Astronomical	Baja, California	Re	1.5m (59")	1970	
National Astrophysical	Tonantzintla	Re	1.0m (40")	1961	
<b>UNITED STATES (Excluding Hawaii)</b>					
<b>ARIZONA</b>					
Lowell	Flagstaff	Re	1.1m (42")	1910	
Lowell-Ohio	Flagstaff	Re	1.8m (72")	1962	(18)
U.S. Naval	Flagstaff	Re	1.5m (61")	1963	
U.S. Naval	Flagstaff	Re	1.0m (40")	1955	

**LARGE NORTH AMERICAN TELESCOPES (Continued)**

Observatory	Location	Type	Size	Date	Notes
<b>ARIZONA (Continued)</b>					
Mt. Lemmon (Univ. of Minnesota and Univ. of California)	Mt. Lemmon	IR	1.5m (60")	1972	
Mt. Lemmon (NASA)	Mt. Lemmon	IR	1.5m (60")	1974	
Mt. Lemmon (Univ. of Arizona)	Mt. Lemmon	IR	1.0m (40")	1970	
Catalina (Univ. of Arizona)	Catalina Site	Re	1.5m (61")	1965	
Catalina (Univ. of Arizona)	Catalina Site	Re	1.0m (39")	?	
Kitt Peak National	Kitt Peak	Re	4.0m (158")	1973	(19)
Kitt Peak National	Kitt Peak	Re	2.1m (84")	1964	
Kitt Peak National	Kitt Peak	Sol	1.5m (60")	1962	(20)
Kitt Peak National	Kitt Peak	Re	1.3m (50")	?	
Steward (Univ. of Arizona)	Kitt Peak	Re	2.3m (90")	1969	
McGraw-Hill	Kitt Peak	Re	2.4m (95")	1986?	(21)
McGraw-Hill	Kitt Peak	Re	1.3m (52")	1975	
Whipple	Mt. Hopkins	MMT	6:1.8m (6:72")	1979	(22)
Whipple	Mt. Hopkins	Re	1.5m (60")	1970	

**LARGE NORTH AMERICAN TELESCOPES (Continued)**

<b>Observatory</b>	<b>Location</b>	<b>Type</b>	<b>Size</b>	<b>Date</b>	<b>Notes</b>
<b>CALIFORNIA</b>					
Mt. Palomar (Cal. Tech.)	Mt. Palomar	Re	5.1m (200")	1948	(23)
Mt. Palomar (Cal. Tech.)	Mt. Palomar	Re	1.5m (60")	1970	
Mt. Palomar (Cal. Tech.)	Mt. Palomar	S	1.2m/1.8m (48"/72")	1948	
Mt. Wilson (Carnegie Institution)	Mt. Wilson	Re	2.5m (100")	1917	(24)
Mt. Wilson (Carnegie Institution)	Mt. Wilson	Re	1.5m (60")	1908	
Mt. Wilson (Carnegie Institution)	Mt. Wilson	Re	1.0m (40")	?	
Lick (Univ. of California)	Mt. Hamilton	Re	3.0m (120")	1959	(25)
Lick (Univ. of California)	Mt. Hamilton	Re	1.0m (40")	1979?	
<b>ILLINOIS</b>					
Lindheimer (Northwestern Univ.)	Evanston	Re	1.0m (40")	1967	
Prairie (Univ. of Illinois)	Oakland	Re	1.0m (40")	?	
<b>MASSACHUSETTS</b>					
Agassiz Station (Harvard College)	Harvard	Re	1.5m (61")	1934	(26)
<b>NEW MEXICO</b>					
Sacramento Peak (NOAO)	Sunspot	Sol	1.6m (64")	1969	(27)
<b>OHIO</b>					
Ritter (Univ. of Toledo)	Toledo	Re	1.0m (40")	1967	

**LARGE NORTH AMERICAN TELESCOPES (Continued)**

<b>Observatory</b>	<b>Location</b>	<b>Type</b>	<b>Size</b>	<b>Date</b>	<b>Notes</b>
<b>PENNSYLVANIA</b>					
Penn State Univ.	Rattlesnake Mt.	Re	1.5m (60")	1974/75	
<b>TEXAS</b>					
McDonald (Univ. of Texas)	Fort Davis	Re	2.7m (107")	1968	
McDonald (Univ. of Texas)	Fort Davis	Re	2.1m (82")	1939	(28)
<b>VIRGINIA</b>					
McCormick (Univ. of Virginia)	Fan Mt. Station	Re	1.0m (40")	1976?	
<b>WISCONSIN</b>					
Yerkes (Univ. of Chicago)	Williams Bay	Re	1.0m (41")	1968	
Yerkes (Univ. of Chicago)	Williams Bay	Rf	1.0m (40")	1897	(29)
<b>WYOMING</b>					
Wyoming Infrared (Univ. of Wyoming)	Jelm Mt.	IR	2.3m (92")	1977	



## NOTES

1. The German 1.3/2.0 meter (53/79-inch) telescope is the largest Schmidt telescope in the world today.
2. The Italian 1.8 meter (72-inch) telescope is named the Copernicus Telescope.
3. The 1.5 meter (60-inch) telescope at Gornergrat, Switzerland is operated by the Center for Infrared Astronomy, of Italy.
4. The Russian 6.0 meter (236-inch) telescope is the largest reflecting telescope in the world today.
5. The 2.6 meter (102-inch) telescope of the Crimean Astrophysical Observatory is named the Shajn Telescope.
6. The 4.2 meter (165-inch) telescope of Roque de los Muchachos Observatory is owned by England and has been named the William Herschel Telescope.
7. The 2.5 meter (100-inch) telescope of Roque de los Muchachos Observatory is owned by England and is named the Isaac Newton Telescope.
8. The 1.0 meter (39-inch) British-Dutch telescope of Roque de los Muchachos Observatory is named the Kapteyn Telescope.
9. England and Australia are joint operators of the 3.9 meter (153-inch) "Anglo-Australian Telescope" at Siding Spring Observatory in Australia.
10. The 1.2/1.8 meter (48/72-inch) Schmidt telescope at Siding Spring Observatory in Australia is operated by England.
11. The 3.8 meter (150-inch) UKIRT (United Kingdom Infrared Telescope) is operated at Mauna Kea Observatory by England.
12. The 3.6 meter (142-inch) CFHT (Canada-France-Hawaii Telescope) is operated at Mauna Kea Observatory by Canada, France, and Hawaii.
13. The 3.0 meter (120-inch) telescope of the National Aeronautics and Space Administration is operated at Mauna Kea Observatory by the University of Hawaii's Institute for Astronomy.
14. The 4.0 meter (158-inch) telescope of the Inter-American Observatory in Chile is the largest telescope in the Southern Hemisphere. The Inter-American Observatory is managed by the National Optical Astronomy Observatories (NOAO) which also manage Kitt Peak National Observatory in Arizona (see note 19).
15. The European Southern Observatory is operated by the following countries: Belgium, Denmark, France, Federal Republic of Germany, Italy, the Netherlands, Sweden, and Switzerland.
16. This 3.6 meter (142-inch) telescope of the European Southern Observatory is known as the New Technology Telescope (NTT).
17. The 2.5 meter (101-inch) telescope of Carnegie Southern Observatory is named the DuPont Telescope. Carnegie Southern Observatory is managed by the Carnegie Institution of Washington, D.C.
18. The 1.8 meter (72-inch) Perkins Telescope is operated jointly by Lowell Observatory, Ohio State University, and Ohio Wesleyan University.
19. The 4.0 meter (158-inch) telescope of Kitt Peak National Observatory is named the Mayall Telescope. Kitt Peak is operated by the National Optical Astronomy Observatories (NOAO) for the Association of Universities for Research in Astronomy (AURA). Member universities include the following: University of Arizona, California Institute of Technology, University of California, University of Chicago, University of Colorado, Harvard University, University of Hawaii, University of Illinois, Indiana University, Johns Hopkins University, Massachusetts Institute of Technology, University of Michigan, Ohio State University, Princeton University, University of Texas, University of Wisconsin, and Yale University.

20. The McMath solar telescope at Kitt Peak National Observatory is the largest of its type in the world, with a focal length of 91 meters (300 feet).
21. The McGraw-Hill Observatory is managed by the University of Michigan, Dartmouth College, and the Massachusetts Institute of Technology.
22. The MMT or "Multiple-Mirror Telescope" concentrates the light from six 1.8 meter (72-inch) mirrors at a common focus. The light collecting area of these mirrors is equal to that of one large 4.5 meter (176-inch) mirror.
23. The 5.1 meter (200-inch) Hale Telescope of Mt. Palomar Observatory is the second largest reflecting telescope in the world today.
24. The 2.5 meter (100-inch) telescope of Mt. Wilson Observatory is named the Hooker Telescope.
25. The 3.0 meter (120-inch) telescope of Lick Observatory is named the Shane Telescope.
26. The Harvard 1.5 meter (61-inch) telescope is named the Wyeth Telescope.
27. The 1.6 meter (64-inch) solar telescope of Sacramento Peak Observatory is operated by the National Optical Astronomy Observatories (NOAO).
28. The 2.1 meter (82-inch) telescope of McDonald Observatory is named the Struve Telescope.
29. The Yerkes Observatory 1.0 meter (40-inch) telescope is the largest refracting telescope in the world.

## REFERENCES

- Kirby-Smith, H. T.: U.S. Observatories: A Directory and Travel Guide. Van Nostrand Reinhold Company, New York, 1976.
- Kuiper, Gerald P. and Middlehurst, Barbara M., editors: Telescopes. The University of Chicago Press, Chicago, Illinois, 1960.
- Marx, Siegfried and Pfau, Werner: Observatories of the World. Van Nostrand Reinhold Company, New York, 1982.
- Meszaros, Stephen Paul: Locational Analysis of Astronomical Observatories (Master's Thesis). Arizona State University, Tempe, Arizona, 1973.
- Meszaros, Stephen Paul: World Atlas of Large Optical Telescopes (NASA TM 80246). National Aeronautics and Space Administration/Goddard Space Flight Center, Greenbelt, Maryland, 1979. (Available from the National Technical Information Service, Springfield, Virginia 22161.)
- Meszaros, Stephen Paul: United States Atlas of Optical Telescopes (NASA TM 80319). National Aeronautics and Space Administration/Goddard Space Flight Center, Greenbelt, Maryland, 1979. (Available from the National Technical Information Service, Springfield, Virginia 22161.)
- Sky and Telescope Magazine. Sky Publishing Corporation, Cambridge, Massachusetts, volumes 17-71, 1957-1986.
- Thrower, Norman J. W., editor: Man's Domain, A Thematic Atlas of the World. McGraw-Hill Book Company, New York, 1970.

## BIBLIOGRAPHIC DATA SHEET

1. Report No. NASA TM-87775	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle World Atlas of Large Optical Telescopes - Second Edition		5. Report Date September 1986	
		6. Performing Organization Code 253.3	
7. Author(s) Stephen Paul Meszaros		8. Performing Organization Report No. 86B0279	
9. Performing Organization Name and Address Goddard Space Flight Center Greenbelt, Maryland 20771		10. Work Unit No.	
		11. Contract or Grant No.	
		13. Type of Report and Period Covered Technical Memorandum	
12. Sponsoring Agency Name and Address National Aeronautics and Space Administration Washington, D.C. 20546		14. Sponsoring Agency Code	
15. Supplementary Notes			
<p><b>16. Abstract</b></p> <p>By early 1986 there will be over 120 large optical telescopes in the world engaged in astronomical research with mirror or lens diameters of one meter (39-inches) and larger. This atlas gives information on these telescopes and shows their observatory sites on continent-sized maps. Also shown are observatory locations considered suitable for the construction of future large telescopes.</p> <p>Of the 126 major telescopes listed in this atlas, 101 are situated in the Northern Hemisphere and 25 are located in the Southern Hemisphere. The totals by regions are as follows: Europe (excluding the USSR), 30; Soviet Union, 9; Asia (excluding the USSR), 5; Africa, 9; Australia, 6; The Pacific, 4 (all on Hawaii); South America, 17; North America, 46 (the continental US has 38 of these). In all, the United States has 42 of the world's major telescopes on its territory (continental US plus Hawaii) making it by far the leading nation in astronomical instrumentation.</p>			
17. Key Words (Selected by Author(s)) Large Optical Telescopes Major Observatories Prime Observatory Locations		18. Distribution Statement Unclassified-Unlimited  Subject Category 89	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 42	22. Price A03

**End of Document**