

|   |   |      |
|---|---|------|
| 1 | 1 | AF   |
| 1 | 1 | FE   |
| 1 | 1 | INR  |
| 1 | 1 | IO   |
| 1 | 1 | AID  |
| 1 | 1 | FRB  |
| 1 | 1 | TAR  |
| 1 | 1 | AIR  |
| 1 | 1 | NAVY |
| 1 | 1 | NSA  |
| 1 | 1 | NSF  |

# AIRGRAM

DEPARTMENT OF STATE

sci 1-1 Bug 43

FOR RM USE ONLY

A-1111

UNCLASSIFIED

HANDLING INSTRUCTIONS

TO : DEPARTMENT OF STATE 1966 MAY 13 AM 11 01

DEPT PASS: National Science Foundation (Dr. Fleischer)

ANALYSIS & DISTRIBUTION  
BRANCH

MAY 09 1966

FROM : AmEmbassy RIO DE JANEIRO

DATE: May 6 1966

SUBJECT: Morro do Valongo Observatory to cooperate with Yale Observatory

REF :

1. In compliance with a request from Dr. David Dunham of the Yale University Observatory, the Morro do Valongo Observatory has implemented an observation program of "grazing occultations".

2. Professor Luiz Eduardo da Silva Machado, President of the Commission of Astronomy, University of Brazil, has submitted the attached sunspot group data to the Embassy with the request that it be forwarded to Dr. Dunham through the Department.

3. Professor Machado has also requested the Scientific Attaché to obtain the publication "The Marginal Zone of the Moon" by Dr. C. W. Watts (Astronomical Papers prepared for the use of the American Ephemeris and Nautical Almanac, Vol. XVII) and "one mean limb template out of plexiglass to be used for a vertical scale of one inch per second of arc and a horizontal scale of one inch per degree A.A.". The latter is available at a cost of U.S.\$2.00, made by Robert L. Sandy, 9835 Winner Road, Independence, Missouri 64052.

4. In light of the Valongo Observatory's excellent cooperation in this program, as well as their offered collaboration during the forthcoming Solar Eclipse, the Embassy suggests that the Department and the Yale Observatory might service this modest request. The requested materials may be sent, via air pouch, c/o the Scientific Attaché, for personal delivery to Dr. Machado.

Attachments

UNCLASSIFIED

RAINE

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☒ In ☐ Out

Drafted by:

SA:JEAsper:sl

5/6/66

Contents and Classification Approved by:

SA:ACSimonpietri

Clearances:

POL:FCCarlucci

DECLASSIFIED

Authority NND 959000

UNIVERSIDADE DO BRASIL  
OBSERVATORIO DO MORRO DO VALONGO

Ladeira Pedro Antonio 43  
Saude - Guanabara - Brasil - ZC-05

CIRCULAR

Nº 1 /66

OBSERVATIONS OF THE SUNSPOT-GROUPS

| DATE    | U. T. | g | f  | Q | OBS. | OBSERVER |
|---------|-------|---|----|---|------|----------|
| DEC. 20 | 12 00 | 0 | 0  | E |      | E. V.    |
| 21      | 12 00 | 0 | 0  | E |      | L.E.M.   |
| 22      | 12 00 |   |    | A |      | E. V.    |
| 23      | 12 00 |   |    | A |      | E. V.    |
| 24      | 12 00 |   |    | A |      | L.E.M.   |
| 25      | 12 20 | 1 | 6  | E |      | E.A.S.   |
| 26      | 12 30 | 1 | 13 | E |      | E.A.S.   |
| 27      | 12 45 | 2 | 19 | D |      | E. V.    |
| 28      | 12 50 | 3 | 25 | D |      | E. V.    |
| 29      | 12 10 | 4 | 37 | D |      | E. V.    |
| 30      | 12 50 | 5 | 20 | D |      | E. V.    |
| 31      | 12 00 |   |    | A |      | E. V.    |

g..... number of observed groups  
f..... number of observed spots  
Q..... quality of the solar image  
A... observation impossible  
B... very poor  
C... poor  
D... good  
E... very good  
F... excelent

Rio de Janeiro, January, 1st, 1966

LUIZ EDUARDO DA SILVA MACHADO  
president  
Astronomy Commission

## OBSERVATÓRIO DO MORRO DO VALONGO

Ladeira Pedro Antonio 43  
Saude - Guanabara - Brasil - ZC-05

CIRCULAR

Nº 2 /66

OBSERVATIONS OF THE SUNSPOT-GROUPS

| DATE   | U. T. | g | f  | Q | OBS | OBSERVER |
|--------|-------|---|----|---|-----|----------|
| JAN. 1 | 12    |   |    | A |     | L. E. M. |
| 2      | 11 45 | 2 | 4  | D |     | L. E. M. |
| 3      | 10 45 | 2 | 2  | E |     | E. V.    |
| 4      | 12 40 | 2 | 2  | E |     | E. V.    |
| 5      | 12    |   |    | A |     | E. V.    |
| 6      | 12    | 0 | 0  | E |     | E. V.    |
| 7      | 11 50 | 0 | 0  | C |     | L. E. M. |
| 8      | 11 50 | 0 | 0  | C |     | G. V.    |
| 9      | 12    | 0 | 0  | C |     | E. A. S. |
| 10     | 11 45 | 0 | 0  | D |     | E. V.    |
| 11     | 12    |   |    | A |     | E. V.    |
| 12     | 12    |   |    | A |     | E. V.    |
| 13     | 12    |   |    | A |     | E. V.    |
| 14     | 12    |   |    | A |     | L. E. M. |
| 15     | 12 15 | 1 | 12 | B |     | E. A. S. |

g..... number of observed groups  
f..... number of the observed spots  
Q..... quality of the solar image  
A... observation impossible  
B... very poor  
C... poor  
D... good  
E... very good  
F... excellent

Rio de Janeiro, January, 15, 1966

LUIZ EDUARDO DA SILVA MACHADO  
president  
Astronomy Commission

Ladeira Pedro Antonio 43  
Saude - Guanabara - Brasil - ZC-05

CIRCULAR

Nº 3 /66

OBSERVATIONS OF THE SUNSPOT-GROUPS

| DATE    | U. T. | g   | f   | Q     | OBS. | OBSERVER   |
|---------|-------|-----|-----|-------|------|------------|
| JAN. 16 | 12 30 | 5   | 25  | C     |      | E. A. S.   |
| 17      | 13 45 | 3   | 25  | C     |      | L. E. M.   |
| 18      | 13    | 4   | 28  | D     |      | L. E. M.   |
| 19      | 13 50 | 5   | 23  | B---C |      | L. E. M.   |
| 20      | 11 40 | 5   | 15  | C     |      | H.S - G.V. |
| 21      | 12    | 7   | 18  | E     |      | H.S.- G.V. |
| 22      | 12 15 | 5   | 8   | E     |      | E. A. S.   |
| 23      | 12 5  | 2   | 9   | E     |      | E. A. S.   |
| 24      | 11 55 | 4   | 14  | E     |      | H. S.      |
| 25      | 11 45 | 3   | 11  | E     |      | H. S.      |
| 26      | 11 45 | 2   | 8   | D     |      | H. S.      |
| 27      | ---   | --- | --- | A     |      | G. V.      |
| 28      | 14 45 | 2   | 4   | D     |      | G. V.      |
| 29      | 12 15 | 1   | 1   | E     |      | E. A. S.   |
| 30      | 12 20 | 3   | 6   | E     |      | E. A. S.   |
| 31      | 12    | 1   | 1   | B---C |      | H. S.      |

g..... number of observed groups  
f..... number of observed spots  
Q..... quality of the solar image  
A... observation impossible  
B... very poor  
C... poor  
D... good  
E... very good  
F... excelent

Rio de Janeiro, 31 de janeiro, 1966

LUIZ EDUARDO DA SILVA MACHADO  
president  
Astronomy Commission

UNIVERSIDADE DO BRASIL

OBSERVATÓRIO DO MORRO DO VALONGO

Ladeira Pedro Antonio 43

SAUDE - GUANABARA - BRASIL - ZC-05

CIRCULAR

Nº 4 /66

OBSERVATIONS OF THE SUNSPOTS-GROUPS

| DATE   | U. T. | g   | f   | Q    | OBS | OBSERVER      |
|--------|-------|-----|-----|------|-----|---------------|
| FEB. 1 | ---   | --  | --  | A    |     | G. V.         |
| 2      | 13 15 | 1   | 3   | C--- | D   | H. S.         |
| 3      | 11 45 | 1   | 9   | E    |     | H. S. - G. V. |
| 4      | 14 25 | 1   | 9   | E    |     | G. V.         |
| 5      | 12 15 | 1   | 9   | B    |     | E. A. S.      |
| 6      | 12    | 1   | 7   | D    |     | E. A. S.      |
| 7      | 11 45 | 1   | 8   | E    |     | H. S.         |
| 8      | 11 30 | 1   | 8   | D    |     | H. S.         |
| 9      | 11 35 | 1   | 5   | D    |     | G. V.         |
| 10     | 14 30 | 1   | 5   | D    |     | G. V.         |
| 11     | 12 35 | 1   | 6   | E    |     | G. V.         |
| 12     | 12 10 | 1   | 2   | E    |     | E. A. S.      |
| 13     | ---   | --- | --- | ---  |     | ---           |
| 14     | 11 40 | 2   | 10  | D    |     | H. S.         |
| 15     | 11 45 | 2   | 7   | D    |     | H. S.         |

g..... number of observed groups

f..... number of observed spots

Q..... quality of the solar image

A... observation impossible

B... very poor

C... poor

D... good

E... very good

F... excelent

Rio de Janeiro, February, 15, 1966

LUIZ EDUARDO DA SILVA MACHADO

president

Astronomy Commission

DECLASSIFIED

Authority NND 959000

UNIVERSIDADE DO BRASIL

OBSERVATORIO DO MORRO DO VALONGO

Ladeira Pedro Antonio 43

SAUDE - GUANABARA - BRASIL - ZC-05

CIRCULAR

Nº 5 /66

OBSERVATIONS OF THE SUNSPOTS-GROUPS

| DATE    | U. T. | g | f  | Q | OBSERVER |
|---------|-------|---|----|---|----------|
| FEB. 16 | 11 35 | 2 | 16 | E | H. S.    |
| 17      | 13 45 | 2 | 4  | D | G. V.    |
| 18      | 11 40 | 2 | 11 | E | G. V.    |
| 19      | 12 10 | 2 | 11 | D | E. A. S. |
| 20      | --    |   |    | A | E. A. S. |
| 21      | 12 05 | 6 | 38 | E | H. S.    |
| 22      | 12 20 | 6 | 42 | D | H. S.    |
| 23      | --    |   |    | A | H. S.    |
| 24      | 12 45 | 5 | 12 | E | G. V.    |
| 25      | 12 40 | 5 | 7  | C | G. V.    |
| 26      | 13 15 | 5 | 8  | D | E. A. S. |
| 27      | 12 30 | 5 | 10 | D | E. A. S. |
| 28      | 11 50 | 4 | 14 | D | H. S.    |

g..... number of the observed groups

f..... number of the observed spots

Q..... quality of the solar image:

A... observation impossible

B... very poor

C... poor

D... good

E... very good

F... excelent

Rio de Janeiro, February 28, 1966

LUIZ EDUARDO DA SILVA MACHADO

President

Astronomy Commission

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Authority NND 959000

UNIVERSIDADE DO BRASIL

OBSERVATÓRIO DO MORRO DO VALONGO

Ladeira Pedro Antonio 43

SAUDE - Guanabara - Brasil - ZC-05

CIRCULAR

Nº 6 /66

OBSERVATIONS OF THE SUNSPOTS-GROUPS

| DATE   | U. T. | G | F | Q     | OBSERVER |
|--------|-------|---|---|-------|----------|
| MAR. 1 | --    |   |   | A     | H. S.    |
| 2      | 12 45 | 2 | 7 | D     | H. S.    |
| 3      | 13 35 | 2 | 6 | E     | G. V.    |
| 4      | 13 35 | 2 | 9 | B---C | H. S.    |
| 5      | --    |   |   | A     | L. E. M. |
| 6      | --    |   |   | A     | E. A. S. |
| 7      | 18 15 | 1 | 2 | B     | L. E. M. |
| 8      | --    |   |   | A     | G. V.    |
| 9      | --    |   |   | A     | G. V.    |
| 10     | --    |   |   | A     | G. V.    |
| 11     | 17 15 | 0 | 0 | C     | L. E. M. |
| 12     | 18    | 0 | 0 | E     | G. V.    |
| 13     | 16 15 | 1 | 2 | E     | E. A. S. |
| 14     | 17 05 | 0 | 0 | E     | G. V.    |
| 15     | 16 55 | 1 | 1 | E     | E. A. S. |

g..... number of the observed groups

f..... number of the observed spots

Q..... quality of the solar image:

A... observation impossible

B... very poor

C... poor

D... good

E... very good

F... excelent

Rio de Janeiro, Mar. 15, 1966

LUIZ EDUARDO DA SILVA MACHADO

President

Astronomy Commission

DECLASSIFIED

Authority NND 959000

UNIVERSIDADE DO BRASIL  
OBSERVATÓRIO DO MORRO DO VALONGO

Ladeira Pedro Antonio, 43  
SAUDE - GUANABARA - BRASIL - ZC-05

C I R C U L A R

Nº 7 /66

OBSERVATIONS OF THE SUNSPOTS-GROUPS

| DATE    | U. T. | g | f  | Q | OBSERVER    |
|---------|-------|---|----|---|-------------|
| MAR. 16 | 17 10 | 2 | 16 | E | G. V.       |
| 17      | 17 45 | 2 | 22 | F | L. E. M.    |
| 18      | 16 00 | 2 | 36 | F | H. S.       |
| 19      | 18 00 | 3 | 34 | E | G.V. - H.S. |
| 20      | 19 15 | 2 | 29 | E | E. V.       |
| 21      | 17 15 | 2 | 14 | E | G. V.       |
| 22      | 17 00 | 3 | 20 | E | E. A. S.    |
| 23      | 15 50 | 3 | 17 | E | G. V.       |
| 24      | 15 50 | 4 | 10 | E | H. S.       |
| 25      | 17 00 | 2 | 8  | E | E. A. S.    |
| 26      | 17 30 | 1 | 1  | D | E. A. S.    |
| 27      | --    |   |    | A | E. A. S.    |
| 28      | --    |   |    | A | E. A. S.    |
| 29      | 17 10 | 3 | 23 | C | E. A. S.    |
| 30      | 18 00 | 4 | 19 | E | G. V.       |
| 31      | 16 45 | 5 | 21 | D | H. S.       |

g..... number of the observed groups  
f..... number of the observed spots  
Q..... quality of the solar image:

A...observation impossible

B...very poor

C...poor

D...good

E...very good

F...excellent

Rio de Janeiro, March 31, 1966

LUIZ EDUARDO DA SILVA MACHADO  
President  
Astronomy Commission

UNIVERSIDADE DO BRASIL  
OBSERVATÓRIO DO MORRO DO VALONGO

Ladeira Pedro Antonio 43  
SAUDE - Guanabara - Brasil - ZC-05

CIRCULAR

Nº 9 /66

OBSERVATIONS OF THE SUNSPOT-GROUPS

| DATE    | U. T. | g | f  | Q | OBS. | OBSERVER |
|---------|-------|---|----|---|------|----------|
| APRIL 1 | 17 20 | 5 | 19 | D |      | E.A.S.   |
| 2       | 15    | 3 | 23 | D |      | E.V.     |
| 3       | 15 15 | 3 | 17 | D |      | E.V.     |
| 4       | 16 40 |   |    | A |      | G.V.     |
| 5       | 17 30 | 3 | 20 | D |      | E.E.M.   |
| 6       |       |   |    | A |      | E.S.     |
| 7       |       |   |    | A |      | E.S.     |
| 8       |       |   |    | A |      | G.V.     |
| 9       |       |   |    | A |      | E.V.     |
| 10      | 17 45 | 3 | 11 | E |      | E.A.S.   |
| 11      |       |   |    | A |      | G.V.     |
| 12      | 18    | 1 | 3  | E |      | E.E.M.   |
| 13      | 16 55 | 1 | 6  | D |      | G.V.     |
| 14      | 16 55 | 3 | 11 | E |      | E.S.     |
| 15      | 15 30 | 3 | 15 | E |      | E.A.S.   |

g..... number of observed groups  
f..... number of observed spots  
Q..... quality of the solar image  
A... observation impossible  
B... very poor  
C... poor  
D... good  
E... very good  
F... excellent

Rio de Janeiro, Abril 15, 1966

LUIZ EDUARDO DA SILVA  
president  
Astronomy Commission

UNIVERSIDADE DO BRASIL

OBSERVATÓRIO DO VALONGO

Ladeira Pedro Antonio, 43  
SAUL - GUANABARA - BRASIL - ZC-05

CIRCULAR

Nº 10 /66

RECORD OF THE OBSERVATION-GROUPS

| DATE     | U. T. | S | X  | Q | QBS. | QBSIMPR. |
|----------|-------|---|----|---|------|----------|
| APRIL 16 | 15,10 | 4 | 18 | F |      | F.V.     |
| 17       | 14,40 | 4 | 22 | F |      | F.V.     |
| 18       | 17,05 | 4 | 21 | F |      | F.V.     |
| 19       | 15,40 | 2 | 7  | D |      | F.A.B.   |
| 20       | 17,00 | 6 | 18 | D |      | F.V.     |
| 21       | 17,10 | 6 | 18 | F |      | F.V.     |
| 22       |       |   |    | A |      | F.A.B.   |
| 23       | 17,00 | 3 | 28 | F |      | F.V.     |
| 24       | 16,40 | 3 | 34 | F |      | F.V.     |
| 25       | 17,00 | 4 | 22 | D |      | F.V.     |
| 26       |       |   |    | A |      | F.A.B.   |
| 27       | 17,30 | 2 | 8  | F |      | F.V.     |
| 28       | 16,00 | 2 | 5  | F |      | F.V.     |
| 29       | 16,00 | 3 | 6  | F |      | F.A.B.   |
| 30       | 17,00 | 3 | 5  | B |      | F.V.     |

S..... number of the observed groups

X..... number of the observed spots

Q..... quality of the solar image

A... observation impossible

B... very poor

C... poor

D... good

F... very good

F... excellent

Rio de Janeiro, April, 30, 1966

WILLIAM DE SILVA

President

Astronomy Commission

DECLASSIFIED

Authority NND 959000

### OCCULTATION OBSERVATIONS

CE NAME OBSERVATÓRIO DO MORRO DO VALONGO, UNIVERSIDADE DO BRASIL  
LADEIRA PEDRO ANTONIO # 43 - SAUDE- GUANABARA - BRASIL - ZC-05

## TELESCOPES AND POSITIONS

|   | Description  | Longitude        | Latitude         | Height       |
|---|--------------|------------------|------------------|--------------|
| A | COOKE-12"    | 43°11:09,85" (W) | 22°53:51,30" (S) | 51,79 metros |
| B | PAZOS-11,6cm | 43 11 11,31      | 22 53 51,57      | 51,37        |

C

## OBSERVERS

|   |                       |   |                     |   |
|---|-----------------------|---|---------------------|---|
| a | Prof. Luiz E. Machado | d | Hugo de Souza       | g |
| b | Edgar Vieira          | e | Getulio Jesus Vilar | h |
| c | José Buarque Nazaré   | f | Ronaldo Perseke     | i |

METHOD OF TIMING STOP-WATCH (1/10 seg.) - Local Radio Time signal.

## PERSONAL EQUATION

Applied / Not applied

YEAR 1966

| 1<br>Date and U.T.       |    |    |    |      | 2    | 3        | 4         | 5    | 6   | 7       | 8                | 9           | 10      |
|--------------------------|----|----|----|------|------|----------|-----------|------|-----|---------|------------------|-------------|---------|
| Mth.                     | d  | h  | m  | s    | Lun. | Z.C. No. | T x magn. | Obs. | Ph. | Remarks | Method of Timing | Time Signal | P. Eqn. |
| 3                        | 30 | 0  | 40 | 08.6 | edge | 7.8      | 1042      | B    | 6.6 | a D     | Poor             | -           | -       |
| 4                        | 15 | 6  | 22 | 51.5 |      | 12.8     | 3202      | B    | 6.1 | b R     | very good        | -           | -       |
| 4                        | 28 | 0  | 16 | 14.2 |      | 7.1      | 1283      | B    | 6.8 | a D     | very poor        | -           | -       |
| 4                        | 29 | 21 | 35 | 44.4 |      | 8.1      | 1533      | A    | 7.2 | d D     | very poor        | -           | -       |
| ;.....                   |    |    |    |      |      |          |           |      |     |         |                  |             |         |
| Prof. Luiz P. S. Machado |    |    |    |      |      |          |           |      |     |         |                  |             |         |

N.A.O. 1966 March

more forms required YES/NO

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