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1993年6月

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## 《太阳地球物理资料》各表表头内容说明

注:各表按目录顺序依次说明,若各表内容有相同的则只作一次说明。

### 太阳黑子相对数与面积数表

|                   |                                                             |             |                                                                                                                                 |
|-------------------|-------------------------------------------------------------|-------------|---------------------------------------------------------------------------------------------------------------------------------|
| Day:              | 每天观测日期                                                      | E':         | 预报误差                                                                                                                            |
| Gro:              | 每天在日面上的黑子群总数                                                | Ha          | 太阳耀斑表                                                                                                                           |
| Relative—Num—     | 每天的黑子相对数值                                                   | Sta:        | 台站                                                                                                                              |
| bers:             |                                                             | Start (UT): | 耀斑开始时间(UT 为世界时,其中“E”为小于此时间。)                                                                                                    |
| N. H.:            | 每天北半球的黑子相对数                                                 | Max (UT):   | 耀斑的极大时间(“U”为接近此时间,不确定。)                                                                                                         |
| S. H.:            | 每天南半球的黑子相对数                                                 | End (UT):   | 耀斑的结束时间(“D”为大于此时间。)                                                                                                             |
| Sum:              | 南、北半球黑子相对数的总和                                               | Cen         | 日心距,即 $r/R$ 。                                                                                                                   |
| Sunspot Areas:    | 太阳黑子面积数值                                                    | Dist:       |                                                                                                                                 |
| Drawing:          | 手描的                                                         | Area        | 耀斑极大时的面积( $S_d$ 为视面积,单位为太阳圆面积的 $10^{-8}$ ; $S_q$ 为校正面积,以平方度为单位。)                                                                |
| Photographic:     | 照相的                                                         | Measurement |                                                                                                                                 |
| N. H.:            | 每天北半球黑子面积                                                   | Appar Corr  |                                                                                                                                 |
| S. H.:            | 每天南半球黑子面积                                                   | (sd) (sq):  |                                                                                                                                 |
| Sum:              | 南、北半球黑子面积的总和                                                | Imp:        | 耀斑的级别                                                                                                                           |
| 太阳黑子观测表           |                                                             | Obs         | 耀斑资料类型                                                                                                                          |
| Group:            | 在日面上的黑子群号                                                   | Type:       |                                                                                                                                 |
| CMP               | 黑子群过日面中心经圈日期,用月—日表示。                                        | A. R.:      | 耀斑所在活动区的黑子群号                                                                                                                    |
| Mo—Day:           |                                                             | Rem:        | 备注(记录耀斑发生时的形态)                                                                                                                  |
| Lat:              | 黑子群在日面上的纬度                                                  |             |                                                                                                                                 |
| L:                | 黑子群在日面上的卡林顿经度                                               |             |                                                                                                                                 |
| CMD:              | 黑子群在日面上的中经距                                                 |             |                                                                                                                                 |
| Type:             | 黑子群的 McIntosh 类型                                            | Ha          | 耀斑巡视时间表                                                                                                                         |
| r/R:              | 黑子群在日面上的日心距(以太阳半径为 1)                                       | From:       | 耀斑照相巡视开始时间                                                                                                                      |
|                   |                                                             | To:         | 耀斑照相巡视的结束时间                                                                                                                     |
| Corre. Area $S_d$ | 黑子群在日面上所占的面积( $S_d$ 为视面积,Whole 为校正后的全群面积,Max 为校正后的最大黑子的面积。) |             | 太阳活动区磁场和速度场的观测表                                                                                                                 |
| whole Max:        |                                                             | Lo:         | 每天的日面中心经度                                                                                                                       |
|                   |                                                             | Huairou     | 北京天文台怀柔观测站的                                                                                                                     |
|                   |                                                             | Region:     | 活动区编号                                                                                                                           |
| See:              | 观测时大气视宁静度                                                   | Data:       | 取得的磁场资料类型                                                                                                                       |
| Remarks:          | 备注(空白表示云南天文台的观测资料,注明 PLAT 的为北京天文馆资料,PURP 为南京紫金山天文台资料。)      |             | 太阳射电辐射流量表                                                                                                                       |
|                   |                                                             | BELJ        | 每天的太阳在 2840 MHz 的流量密度(北台 0400 UT 测量,以 $10^{-22} \cdot \text{瓦} \cdot \text{米}^{-2} \cdot \text{赫}^{-1} (\text{s. f. u.})$ 为单位。) |
|                   |                                                             | 2840:       |                                                                                                                                 |
|                   |                                                             | PURP        | 每天的太阳在 2700 MHz 的流量密度(紫台 0400 UT 测)                                                                                             |
|                   |                                                             | 2700:       |                                                                                                                                 |

### 太阳黑子相对数的平滑值预报表

|       |              |       |                                     |
|-------|--------------|-------|-------------------------------------|
| Time: | 预报的时间        | PURP  | 每天的太阳在 2700 MHz 的流量密度(紫台 0400 UT 测) |
| R':   | 月平滑黑子相对数的预报值 | 2700: |                                     |

|                                                                                                                                                              |                        |                                                          |                      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|----------------------------------------------------------|----------------------|
| URUM                                                                                                                                                         | 每天的太阳在 9375 MHz 的      | Mean:                                                    | 日均值                  |
| 9375 :                                                                                                                                                       | 流量密度(乌站 0500 UT 测)     | N:                                                       | 记录的小时数               |
| YUNN                                                                                                                                                         | 每天的太阳在 2840 MHz 的      | Day:                                                     | 日期                   |
| 2840 :                                                                                                                                                       | 流量密度(云台 0500 UT 测)     | 最后四行是仪器全天工作天数的月平均日变化与相应的月均值的差。宇宙线强度图说明请参见 1992 年第 1 期说明。 |                      |
| 太阳射电辐射显著事件表                                                                                                                                                  |                        |                                                          |                      |
| Freq:                                                                                                                                                        | 观测频率                   | 突然电离层扰动(D 层)表                                            |                      |
| Type:                                                                                                                                                        | 射电爆发的型别                | Imp:                                                     | 级别(最小为 1—级,最大为 3+级。) |
| Duration:                                                                                                                                                    | 射电爆发的持续时间(以分钟为单位)      | SPA:                                                     | 相位突然异常               |
| Flux Density:                                                                                                                                                | 射电爆发的流量密度              | LF:                                                      | 低频相位突然异常             |
| Peak:                                                                                                                                                        | 射电爆发流量的峰值增值            | VLF:                                                     | 甚低频相位突然异常            |
| Rel:                                                                                                                                                         | 射电爆发峰值流量与爆发前流量之比值      | SFA:                                                     | 低频场强突然异常             |
| Mean:                                                                                                                                                        | 流量密度的增值对时间求积分再除以爆发持续时间 | 地磁活动指数 K 和 $A_K$ 表                                       |                      |
| 太阳射电辐射巡视时间表                                                                                                                                                  |                        |                                                          |                      |
| BELJ                                                                                                                                                         | 北京天文台 2840 MHz 频率      | 第一行:                                                     | 以三小时为时段的 K 指数        |
| From To                                                                                                                                                      | 巡视时间                   | Sum:                                                     | 总和                   |
| 2840 :                                                                                                                                                       |                        | $A_K$ :                                                  | $A_K$ 指数             |
| PURP                                                                                                                                                         | 紫金山天文台 2700 MHz 频率     | 磁暴表                                                      |                      |
| From To                                                                                                                                                      | 巡视时间                   | Time of Magnetic:                                        | 磁暴时间                 |
| 2700 :                                                                                                                                                       |                        | Begining:                                                | 开始时间                 |
| URUM                                                                                                                                                         | 新疆乌鲁木齐天文站频率为           | Ending:                                                  | 终止时间                 |
| From To                                                                                                                                                      | 9375 MHz 巡视时间          | h:                                                       | 小时                   |
| 9375 :                                                                                                                                                       |                        | m:                                                       | 分钟                   |
| YUNN                                                                                                                                                         | 云南天文台 2840 MHz 频率      | Type:                                                    | 类型                   |
| From To                                                                                                                                                      | 巡视时间                   | Sudden Com.                                              | 急始变幅                 |
| 2840 :                                                                                                                                                       |                        | Amplitude                                                |                      |
| 宇宙线强度表                                                                                                                                                       |                        |                                                          |                      |
| 这部分共有三个表和宇宙线强度图。其中第 1 个表是“中子堆数据表”,它给出的值是记数率与 1500 的差;第 2 个表是“ $\mu$ 介子垂直分量表”它给出的值是记数率与 3000 的差;第 3 个表是“ $\mu$ 介子数据表”,它列出的是相对强度与 1000 的差。这三个表的第一行数据是 1—24 小时。 |                        |                                                          |                      |
| D' HnT ZnT:                                                                                                                                                  |                        |                                                          |                      |
| Deg. of Acti. :                                                                                                                                              |                        |                                                          |                      |
| Maximum Acti.                                                                                                                                                |                        |                                                          |                      |
| on K-scale:                                                                                                                                                  |                        |                                                          |                      |
| 3 hour Int. :                                                                                                                                                |                        |                                                          |                      |
| K Index:                                                                                                                                                     |                        |                                                          |                      |
| Maximum                                                                                                                                                      |                        |                                                          |                      |
| Range                                                                                                                                                        |                        |                                                          |                      |
| D' HnT ZnT:                                                                                                                                                  |                        |                                                          |                      |

# DAILY RELATIVE SUNSPOT NUMBERS AND SUNSPOT AREAS

JUNE 1993

| Day  | Relative-Numbers |      |      |      | Sunspot Areas |       |              |
|------|------------------|------|------|------|---------------|-------|--------------|
|      | Gro.             | N.H. | S.H. | Sum  | Drawing       |       | Photographic |
|      |                  |      |      |      | N.H.          | S.H.  |              |
|      |                  |      |      | Sum  | N.H.          | S.H.  | Sum          |
| 1    | 6                | 49   | 14   | 63   | 877           | 89    | 966          |
| 2    | 8                | 85   | 14   | 99   | 1020          | 218   | 1238         |
| 3    | 8                | 85   | 31   | 116  | 804           | 333   | 1137         |
| 4    | 7                | 58   | 20   | 78   | 676           | 270   | 946          |
| 5    | 5                | 47   | 25   | 72   | 723           | 213   | 936          |
| 6    | 5                | 43   | 34   | 77   | 587           | 380   | 967          |
| 7    | 7                | 42   | 38   | 80   | 329           | 476   | 805          |
| 8    | 4                | 32   | 32   | 64   | 203           | 496   | 699          |
| 9    | 3                | 29   | 26   | 55   | 168           | 503   | 671          |
| 10   | 4                | 20   | 22   | 42   | 171           | 378   | 549          |
| 11   | 4                | 22   | 37   | 59   | 159           | 421   | 580          |
| 12   | 3                | 17   | 0    | 17   | 146           | 0     | 146          |
| 13   | 2                | 17   | 0    | 17   | 123           | 0     | 123          |
| 14   | 1                | 10   | 0    | 10   | 144           | 0     | 144          |
| 15   | 1                | 8    | 0    | 8    | 136           | 0     | 136          |
| 16   | 2                | 10   | 0    | 10   | 140           | 0     | 140          |
| 17   | 1                | 23   | 0    | 23   | 128           | 0     | 128          |
| 18   | 2                | 10   | 0    | 10   | 158           | 0     | 158          |
| 19   | 2                | 0    | 7    | 7    | 4             | 2     | 6            |
| 20   | 2                | 0    | 17   | 17   | 5             | 16    | 21           |
| 21   | 3                |      |      |      | 8             | 48    | 56           |
| 22   | 3                | 16   | 14   | 30   | 4             | 69    | 73           |
| 23   | 4                | 21   | 21   | 42   | 8             | 370   | 378          |
| 24   | 4                | 35   | 18   | 53   | 118           | 281   | 399          |
| 25   | 5                | 31   | 28   | 59   | 174           | 381   | 555          |
| 26   | 5                | 31   | 28   | 59   | 154           | 533   | 687          |
| 27   | 8                | 41   | 49   | 90   | 131           | 539   | 670          |
| 28   | 5                | 10   | 40   | 50   | 118           | 655   | 773          |
| 29   | 7                | 18   | 70   | 88   | 70            | 711   | 781          |
| 30   | 5                | 7    | 69   | 76   | 20            | 676   | 696          |
| Mean |                  | 27.2 | 21.8 | 49.0 | 250.2         | 268.6 | 518.8        |

# DAILY SUNSPOT OBSERVATIONS

JUNE 1993

| Day  | Group | CMP    |     | L   | CMD | Type | r/R  | Sd   | Corre. Area |     | See | Remarks |
|------|-------|--------|-----|-----|-----|------|------|------|-------------|-----|-----|---------|
|      |       | Mo-Day | Lat |     |     |      |      |      | Whole       | Max |     |         |
| 1.12 | 175   | 5-29.7 | 8   | 103 | 30W | DSI  | 0.52 | 164  | 96          | 49  | 0   |         |
|      | 176   | 5-31.3 | 16  | 82  | 11W | HSX  | 0.34 | 189  | 101         | 101 | 0   |         |
|      | 179   | 5-31.5 | 13  | 79  | 8W  | EAI  | 0.28 | 913  | 475         | 225 | 0   |         |
|      | 181   | 6- 2.6 | 9   | 51  | 20E | CAI  | 0.38 | 214  | 116         | 111 | 0   |         |
|      | 184   | 6- 5.2 | -10 | 17  | 57E | DRI  | 0.84 | 97   | 89          | 39  | 0   |         |
|      | 186   | 6- 6.5 | 6   | 0   | 76E | CRO  | 0.97 | 46   | 89          | 81  | 0   |         |
| 2.04 | 173   |        |     |     | 70W | AXX  | 0.94 | 8    | 13          | 6   | 0   |         |
|      | 175   |        |     |     | 43W | DRO  | 0.68 | 71   | 49          | 31  | 0   |         |
|      | 176   |        |     |     | 23W | HSX  | 0.47 | 156  | 88          | 88  | 0   |         |
|      | 179   |        |     |     | 19W | EAC  | 0.39 | 1199 | 651         | 217 | 0   |         |
|      | 181   |        |     |     | 8E  | CSI  | 0.21 | 257  | 131         | 125 | 0   |         |
|      | 184   |        |     |     | 43E | DSI  | 0.69 | 315  | 218         | 145 | 0   |         |
|      | 186   |        |     |     | 61E | DSO  | 0.87 | 84   | 86          | 56  | 0   |         |
|      | 187   | 5-31.3 | 5   | 82  | 23W | AXX  | 0.39 | 4    | 2           | 2   | 0   |         |
| 3.35 | 176   |        |     |     | 40W | HRX  | 0.68 | 59   | 40          | 34  | 0   |         |
|      | 179   |        |     |     | 37W | EKI  | 0.62 | 934  | 595         | 443 | 0   |         |
|      | 181   |        |     |     | 8W  | CSI  | 0.21 | 172  | 88          | 86  | 0   |         |
|      | 184   |        |     |     | 24E | DAI  | 0.45 | 589  | 329         | 259 | 0   |         |
|      | 186   |        |     |     | 43E | CSO  | 0.68 | 105  | 72          | 69  | 0   |         |
|      | 187   | 5-29.2 | + 8 | 109 | 64W | AXX  | 0.88 | 4    | 4           | 4   | 0   | PURP    |
|      | 188   | 6- 3.0 | -10 | 45  | 4W  | AXX  | 0.17 | 8    | 4           | 2   | 0   |         |
|      | 189   | 6- 5.4 | 12  | 15  | 25E | AXX  | 0.47 | 8    | 5           | 2   | 0   |         |
| 4.10 | 175   |        |     |     | 77W | AXX  | 0.97 | 4    | 8           | 8   | 0   |         |
|      | 176   |        |     |     | 51W | BXI  | 0.79 | 13   | 10          | 3   | 0   |         |
|      | 179   |        |     |     | 47W | EAI  | 0.75 | 618  | 465         | 174 | 0   |         |
|      | 181   |        |     |     | 19W | CSI  | 0.36 | 168  | 90          | 86  | 0   |         |
|      | 184   |        |     |     | 15E | DSI  | 0.31 | 513  | 270         | 161 | 0   |         |
|      | 186   |        |     |     | 32E | CSO  | 0.53 | 168  | 99          | 94  | 0   |         |
|      | 189   |        |     |     | 15E | AXX  | 0.33 | 8    | 4           | 2   | 0   |         |
| 5.06 | 179   |        |     |     | 59W | ESI  | 0.86 | 505  | 498         | 187 | 0   |         |
|      | 181   |        |     |     | 31W | CSO  | 0.53 | 143  | 84          | 82  | 0   |         |
|      | 184   |        |     |     | 2E  | DAI  | 0.17 | 421  | 213         | 154 | 0   |         |
|      | 186   |        |     |     | 20E | DSI  | 0.36 | 257  | 137         | 113 | 0   |         |
|      | 189   |        |     |     | 4E  | BXO  | 0.22 | 8    | 4           | 2   | 0   |         |
| 6.09 | 179   |        |     |     | 72W | DSI  | 0.95 | 185  | 309         | 112 | 0   |         |

## JUNE 1993

**CMP**

Corre. Area

See Remarks

[illegible]

# DAILY SUNSPOT OBSERVATIONS

JUNE 1993

| Day   | Group | CMP    |     | L   | CMD | Type | r/R  | Sd  | Corre. Area |     | See | Remarks |
|-------|-------|--------|-----|-----|-----|------|------|-----|-------------|-----|-----|---------|
|       |       | Mo-Day | Lat |     |     |      |      |     | Whole       | Max |     |         |
| 15.04 | 190   |        |     |     | 35W | CSO  | 0.63 | 210 | 136         | 133 | 0   |         |
| 16.05 | 190   |        |     |     | 45W | CSO  | 0.77 | 172 | 135         | 132 | 0   |         |
|       | 196   | 6-17.7 | 10  | 211 | 22E | AXX  | 0.40 | 8   | 5           | 2   | 0   |         |
| 17.03 | 190   |        |     |     | 61W | HSX  | 0.90 | 114 | 128         | 128 | 0   |         |
| 18.03 | 190   |        |     |     | 74W | HSX  | 0.95 | 93  | 154         | 154 | 0   |         |
|       | 196   |        |     |     | 4W  | BXO  | 0.16 | 8   | 4           | 2   | 0   |         |
| 19.03 | 196   |        |     |     | 17W | BXO  | 0.31 | 8   | 4           | 2   | 0   |         |
|       | 197   | 6-19.2 | -17 | 191 | 5E  | AXX  | 0.34 | 4   | 2           | 2   | 0   | PLAT    |
| 20.07 | 196   |        |     |     | 30W | AXX  | 0.52 | 8   | 5           | 2   | 0   |         |
|       | 197   |        |     |     | 11W | BXI  | 0.37 | 29  | 16          | 9   | 0   |         |
| 21.03 | 197   |        |     |     | 23W | DRI  | 0.49 | 84  | 48          | 27  | 0   |         |
|       | 198   | 6-19.0 | 12  | 194 | 27W | BXO  | 0.47 | 8   | 5           | 2   | 0   |         |
|       | 199   | 6-23.9 | 10  | 129 | 39E | AXX  | 0.63 | 4   | 3           | 3   | 0   |         |
| 22.42 | 197   |        |     |     | 42W | CRI  | 0.71 | 97  | 69          | 57  | 0   |         |
|       | 199   |        |     |     | 21E | AXX  | 0.37 | 4   | 2           | 2   | 0   |         |
|       | 200   | 6-24.4 | 3   | 123 | 28E | AXX  | 0.46 | 4   | 2           | 2   | 0   |         |
| 23.08 | 197   |        |     |     | 51W | CRO  | 0.80 | 76  | 64          | 50  | 0   |         |
|       | 199   |        |     |     | 11E | AXX  | 0.23 | 8   | 4           | 2   | 0   |         |
|       | 200   |        |     |     | 19E | BXO  | 0.31 | 8   | 4           | 2   | 0   |         |
|       | 201   | 6-29.0 | -13 | 62  | 80E | HSX  | 0.99 | 93  | 306         | 306 | 0   |         |
| 24.07 | 197   |        |     |     | 63W | CRO  | 0.91 | 29  | 35          | 30  | 0   |         |
|       | 199   |        |     |     | 2W  | HRX  | 0.14 | 25  | 13          | 11  | 0   |         |
|       | 200   |        |     |     | 4E  | DAI  | 0.07 | 210 | 105         | 65  | 0   |         |
|       | 201   |        |     |     | 66E | HAX  | 0.92 | 193 | 246         | 246 | 0   |         |
| 25.06 | 197   |        |     |     | 76W | AXX  | 0.98 | 13  | 30          | 20  | 0   |         |
|       | 199   |        |     |     | 16W | AXX  | 0.30 | 8   | 4           | 4   | 0   |         |
|       | 200   |        |     |     | 8W  | DSI  | 0.15 | 336 | 170         | 91  | 0   |         |
|       | 201   |        |     |     | 53E | DAI  | 0.82 | 357 | 309         | 269 | 0   |         |
|       | 202   | 7- 1.4 | -11 | 30  | 82E | AXX  | 0.99 | 13  | 42          | 28  | 0   |         |

## JUNE 1993

5

# H-ALPHA SOLAR FLARES

JUNE 1993

Area  
Measurement  
Start Max End  
(UT) (UT) (UT)  
Day Sta  
L CMD Dist (Sd) (Sq) Imp Type A.R. Rem

|    |      |       |       |       |     |     |     |      |     |     |    |   |     |   |
|----|------|-------|-------|-------|-----|-----|-----|------|-----|-----|----|---|-----|---|
| 2  | YUHN | 0163E | 0153U | 0156D | N 9 | 53  | E 5 | .183 | 24  | 0.3 | SM | P | 181 | D |
| 9  | YUHN | 0806  | 0821  | 0847  | S10 | 15  | W53 | .810 | 79  | 1.4 | SM | C | 184 | F |
| 10 | YUHN | 0230  | 0237  | 0246  | N18 | 349 | W37 | .647 | 94  | 1.3 | SM | P | G   |   |
| 25 | YUHN | 0120E | 0143  | 0150D | S10 | 36  | E78 | .982 |     |     |    | P | 202 | A |
| 26 | URUM | 0950E | 0950U | 1000  | S 9 | 25  | E71 | .948 | 16  |     | SF | C | 202 | D |
| 26 | URUM | 1032  | 1034  | 1044  | S 9 | 28  | E67 | .926 | 16  |     | SF | C | 202 | D |
| 27 | URUM | 0137  | 0140  | 0152  | S10 | 29  | E57 | .853 | 32  | 0.6 | SF | C | 202 | D |
| 27 | URUM | 0155  | 0207  | 0222  | S11 | 30  | E56 | .846 | 80  | 1.6 | SM | C | 202 | E |
| 27 | URUM | 0237  | 0241  | 0247  | S12 | 31  | E55 | .837 | 32  | 0.6 | SF | C | 202 | D |
| 27 | URUM | 0432  | 0434  | 0445  | S12 | 33  | E52 | .804 | 48  | 0.8 | SM | C | 202 | D |
| 27 | URUM | 0615E | 0615  | 0622  | S11 | 31  | E53 | .813 | 16  | 0.3 | SF | C | 202 | D |
| 27 | URUM | 0821  | 0823  | 0827  | S11 | 31  | E52 | .802 | 16  | 0.3 | SF | C | 202 | D |
| 28 | URUM | 0155E | 0157  | 0200  | S10 | 27  | E47 | .747 | 64  | 1.0 | SF | C | 202 | D |
| 28 | URUM | 0315  | 0320  | 0341  | S 9 | 17  | E56 | .841 | 48  | 0.9 | SF | C | 207 | D |
| 28 | URUM | 0547  | 0551  | 0555  | S12 | 33  | E39 | .661 | 32  | 0.5 | SF | C | 202 | D |
| 28 | URUM | 0914E | 0921  | 0950  | S14 | 57  | E12 | .351 | 113 | 1.3 | SM | C | 201 | E |
| 29 | URUM | 0900  | 0901  | 0904  | S10 | 62  | W 6 | .242 | 48  | 0.5 | SF | C | 201 | D |

## PREDICTED SMOOTHED SUNSPOT NUMBERS

FEBRUARY 1993 — JANUARY 1994

| Date | Feb 93 | Mar 93 | Apr 93 | May 93 | Jun 93 | Jul 93 |
|------|--------|--------|--------|--------|--------|--------|
| R'   | 69.3   | 67.2   | 65.1   | 63.0   | 61.1   | 59.2   |
| E'   | 3.5    | 5.4    | 6.5    | 9.5    | 12.8   | 13.0   |
| Date | Aug 93 | Sep 93 | Oct 93 | Nov 93 | Dec 93 | Jan 94 |
| R'   | 57.3   | 55.6   | 53.8   | 52.1   | 50.5   | 48.8   |
| E'   | 12.6   | 14.4   | 19.4   | 19.8   | 21.2   | 19.0   |

R': The predicted value of monthly smoothed sunspot numbers.  
E': The error of the predicted value

## JUNE 1968

Day From To From To From To From To From To From To From To From To

Combined reports from the observatories listed below:

# OBSERVATION OF MAGNETIC AND VELOCITY FIELDS OF SOLAR ACTIVE REGIONS

JUNE 1993

HUAIROU ST. BEIJING OBS.

| Day | L0    | Huairou<br>Region | Lat | L   | Data                             |
|-----|-------|-------------------|-----|-----|----------------------------------|
| 1   | 72.5  | 77                | 8   | 103 | S5 L5                            |
|     |       | 78                | 15  | 79  | S5 L5                            |
|     |       | 80                | 8   | 48  | S5 L5                            |
| 2   | 59.2  | 77                |     |     | D4 V4 S5 L5 D5 V5                |
|     |       | 78                |     |     | L4 D4 V4 S5 L5 D5 V5 T5 Q5 U5    |
|     |       | 80                |     |     | L4 D4 V4 S5 L5 D5 V5 T5 Q5 U5    |
|     |       | 81                | -11 | 13  | L4 D4 V4 S5 L5 D5 V5 T5 Q5 U5    |
|     |       | 82                | 4   | (0) | L4 D4 V4 S5 L5 D5 V5 T5 Q5 U5    |
| 3   | 46.0  | 77                |     |     | S5 L5                            |
|     |       | 78                |     |     | L4 D4 V4 S5 L5 D5 V5 T5 Q5 U5    |
|     |       | 80                |     |     | S4 L4 D4 V4 S5 L5 D5 V5 T5 Q5 U5 |
|     |       | 81                |     |     | S4 L4 D4 V4 S5 L5 D5 V5 T5 Q5 U5 |
|     |       | 82                |     |     | S4 L4 D4 V4 S5 L5 D5 V5 T5 Q5 U5 |
| 4   | 32.8  | 78                |     |     | D4 V4 S5 L5 D5 V5 T5 Q5 U5       |
|     |       | 80                |     |     | D4 V4 S5 L5 D5 V5 T5 Q5 U5       |
|     |       | 81                |     |     | D4 V4 S5 L5 D5 V5 T5 Q5 U5       |
|     |       | 82                |     |     | D4 V4 S5 L5 D5 V5 T5 Q5 U5       |
| 5   | 19.5  | 80                |     |     | S5 L5                            |
|     |       | 81                |     |     | S5 L5                            |
|     |       | 82                |     |     | S5 L5                            |
| 6   | 6.3   | 78                |     |     | S5 L5                            |
|     |       | 80                |     |     | S5 L5                            |
|     |       | 81                |     |     | L4 D4 V4 S5 L5 D5 V5 T5 Q5 U5    |
|     |       | 82                |     |     | L4 D4 V4 S5 L5 D5 V5 T5 Q5 U5    |
| 7   | 353.1 | 80                |     |     | S5 L5                            |
|     |       | 81                |     |     | S4 L4 D4 V4 S5 L5 D5 V5 T5 Q5 U5 |
|     |       | 82                |     |     | S4 L4 D4 V4 S5 L5 D5 V5 T5 Q5 U5 |
|     |       | 83                | 21  | 284 | S4 L4 D4 V4 S5 L5 D5 V5 T5 Q5 U5 |
| 8   | 339.8 | 81                |     |     | D4 V4 S5 L5 D5 V5 T5 Q5 U5       |
|     |       | 82                |     |     | D4 V4 S5 L5 D5 V5 T5 Q5 U5       |
|     |       | 83                |     |     | D4 V4 S5 L5 D5 V5 T5 Q5 U5       |
| 9   | 326.6 | 81                |     |     | D4 V4 S5 L5 D5 V5 T5 Q5 U5       |

# OBSERVATION OF MAGNETIC AND VELOCITY FIELDS OF SOLAR ACTIVE REGIONS

JUNE 1993

HUAIROU ST. BEIJING OBS.

| Day | L0    | Huairou<br>Region | Lat | L   | Data                             |
|-----|-------|-------------------|-----|-----|----------------------------------|
|     |       | 82                |     |     | D4 V4 S5 L5 D5 V5 T5 Q5 U5       |
|     |       | 83                |     |     | D4 V4 S5 L5 D5 V5 T5 Q5 U5       |
| 12  | 286.9 | 81                |     |     | L5                               |
|     |       | 82                |     |     | S5 L5                            |
|     |       | 83                |     |     | D4 V4 S5 L5 D5 V5 T5 Q5 U5       |
| 13  | 273.6 | 81                |     |     | L5                               |
|     |       | 82                |     |     | L5                               |
|     |       | 83                |     |     | S5 L5                            |
| 14  | 260.4 | 83                |     |     | D4 V4 S5 L5 D5 V5 Q5 U5          |
| 15  | 247.2 | 83                |     |     | S5 L5                            |
| 17  | 220.7 | 83                |     |     | S5 L5                            |
| 18  | 207.5 | 83                |     |     | S5 L5                            |
| 20  | 181.0 | 84                | -18 | 191 | S5 L5                            |
| 21  | 167.8 | 84                |     |     | S5 L5                            |
| 22  | 154.5 | 84                |     |     | D4 V4 S5 L5 D5 V5 T5 Q5 U5       |
| 23  | 141.3 | 84                |     |     | S5 L5                            |
|     |       | 85                | 7   | 129 | S5 L5                            |
|     |       | 86                | -10 | 65  | S5 L5                            |
| 24  | 128.0 | 84                |     |     | S5 L5                            |
|     |       | 85                |     |     | D4 V4 S5 L5 D5 V5 T5 Q5 U5       |
|     |       | 86                |     |     | S4 L4 D4 V4 S5 L5 D5 V5 T5 Q5 U5 |
| 25  | 114.8 | 85                |     |     | D4 V4 S5 L5 D5 V5 T5 Q5 U5       |
|     |       | 86                |     |     | S4 L4 D4 V4 S5 L5 D5 V5 T5 Q5 U5 |
| 26  | 101.6 | 85                |     |     | S5 L5                            |
|     |       | 86                |     |     | L4 D4 V4 S5 L5 D5 V5 T5 Q5 U5    |
|     |       | 87                | -12 | 32  | L4 D4 V4 S5 L5 D5 V5 T5 Q5 U5    |

# OBSERVATION OF MAGNETIC AND VELOCITY FIELDS OF SOLAR ACTIVE REGIONS

JUNE 1993

HUAIROU ST. BEIJING OBS.

| Day | L0   | Huairou<br>Region | Lat | L  | Data                          |
|-----|------|-------------------|-----|----|-------------------------------|
| 27  | 88.3 | 86                |     |    | S5 L5                         |
|     |      | 87                |     |    | S5 L5                         |
| 29  | 61.9 | 85                |     |    | S5 L5                         |
|     |      | 86                |     |    | L4 D4 V4 S5 L5 D5 V5 T5 Q5 U5 |
|     |      | 87                |     |    | L4 D4 V4 S5 L5 D5 V5 T5 Q5 U5 |
|     |      | 88                | -10 | 16 | L4 D4 V4 S5 L5 D5 V5 T5 Q5 U5 |
|     |      | 89                | 3   | 6  | L4 D4 V4 S5 L5 D5 V5 T5 Q5 U5 |
| 30  | 48.6 | 85                |     |    | S5 L5                         |
|     |      | 86                |     |    | L4 D4 V4 S5 L5 D5 V5 T5 Q5 U5 |
|     |      | 87                |     |    | L4 D4 V4 S5 L5 D5 V5 T5 Q5 U5 |
|     |      | 88                |     |    | L4 D4 V4 S5 L5 D5 V5 T5 Q5 U5 |
|     |      | 89                |     |    | L4 D4 V4 S5 L5 D5 V5 T5 Q5 U5 |

NPL SPL: 12 13 14 15

# SOLAR RADIO EMISSION FLUX

JUNE 1993

| Day  | BEIJ<br>2840 | PURP<br>2700 | URUM<br>9375 | YUNN<br>2840 |
|------|--------------|--------------|--------------|--------------|
| 1    | 146          | 132          |              |              |
| 2    | 144          | 142          |              |              |
| 3    | 151          | 148          |              |              |
| 4    | 150          | 127          |              |              |
| 5    | 136          | 131          |              |              |
| 6    | 143          | 133          |              |              |
| 7    | 134          | 131          |              |              |
| 8    | 128          | 126          |              |              |
| 9    | 128          | 123          |              |              |
| 10   | 115          | 116          |              |              |
| 11   | 118          | 118          |              |              |
| 12   | 115          | 106          |              |              |
| 13   | 100          | 100          |              |              |
| 14   | 91           | 94           |              |              |
| 15   | 88           | 92           |              |              |
| 16   | 86           | 90           |              |              |
| 17   | 87           | 91           |              |              |
| 18   | 88           | 91           |              |              |
| 19   | 90           | 92           |              |              |
| 20   | 95           | 97           |              |              |
| 21   | 101          | 99           |              |              |
| 22   | 96           | 100          |              |              |
| 23   | 98           |              |              |              |
| 24   | 122          |              |              |              |
| 25   | 133          | 123          |              |              |
| 26   | 128          | 126          |              |              |
| 27   | 133          | 134          |              |              |
| 28   | 138          | 138          |              |              |
| 29   | 129          |              |              |              |
| 30   | 130          | 127          |              |              |
| Mean | 118.0        | 115.8        |              |              |

# SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES

JUNE 1993

| Day | Freq | Sta  | Type   | Start<br>(UT) | Time of<br>Maximum<br>(UT) | Duration<br>(Min) | Flux<br>Peak | Density<br>Rel<br>Mean |
|-----|------|------|--------|---------------|----------------------------|-------------------|--------------|------------------------|
| 03  | 2840 | BEIJ | 3 S    | 2239.0        | 2242.1                     | 6.0               | 26.4         | 17.6                   |
| 03  | 2840 | BEIJ | 3 S    | 2304.0        | 2306.5                     | 6.0               | 41.2         | 27.4                   |
| 06  | 2840 | BEIJ | 5 S    | 0106.0        | 0110.9                     | 7.0               | 10.7         | 7.5                    |
| 07  | 2840 | BEIJ | 5 S    | 0541.0        | 0543.0                     | 6.0               | 59.1         | 44.1                   |
| 08  | 2700 | PURP | 3 S    | 0202.0        | 0210.0                     | 14.0              | 160.2        | 85.3                   |
| 08  | 2840 | BEIJ | 3 S    | 0202.0        | 0208.9                     | 15.0              | 97.3         | 76.0                   |
| 10  | 2840 | BEIJ | 3 S    | 0556.0        | 0603.1                     | 24.0              | 66.7         | 58.0                   |
| 10  | 2700 | PURP | 3 S    | 0558.0        | 0603.1                     | 10.0              | 73.5         | 56.7                   |
| 24  | 2840 | BEIJ | 45 C   | 0732.0        | 0741.4D                    |                   | 433.5D       | 355.3D                 |
| 25  | 2840 | BEIJ | 5 S    | 0302.0        | 0303.0                     | 3.0               | 20.9         | 15.7                   |
| 26  | 2840 | BEIJ | 1 S    | 0122.0        | 0123.8                     | 3.0               | 8.4          | 6.6                    |
| 26  | 2840 | BEIJ | 5 S    | 0142.0        | 0144.1                     | 7.0               | 30.0         | 23.4                   |
| 26  | 2700 | PURP | 1 S    | 0242.8        | 0244.0                     | 5.2               | 35.5         | 21.6                   |
| 26  | 2700 | PURP | 2 S/F  | 0808.3        | 0810.8                     | 9.7               | 32.0         | 18.5                   |
| 26  | 2840 | BEIJ | 3 S    | 0809.0        | 0813.4                     | 10.0              | 18.9         | 14.8                   |
| 27  | 2840 | BEIJ | 1 S    | 0034.0        | 0036.3                     | 4.0               | 8.6          | 6.5                    |
| 27  | 2840 | BEIJ | 3 S    | 0137.5        | 0141.7                     | 10.0              | 33.8         | 25.4                   |
| 27  | 2700 | PURP | 1 S    | 0142.8        | 0146.8                     | 30.5              | 41.8         | 26.0                   |
| 27  | 2700 | PURP | 46 C   | 0426.0        | 0430.2                     | 15.0              | 84.3         | 58.6                   |
| 27  | 2840 | BEIJ | 46 C   | 0426.0        | 0430.2                     | 11.0              | 81.9         | 61.6                   |
| 28  | 2840 | BEIJ | 45 C   | 0104.0        | 0110.3                     | 13.0              | 53.1         | 38.5                   |
| 28  | 2700 | PURP | 4 S/F  | 0106.0        | 0111.6                     | 13.0              | 76.7         | 50.9                   |
| 30  | 2700 | PUPR | 20 GRF | 0443.0        | 0504.2                     | 35.0              | 27.3         | 15.0                   |
| 30  | 2840 | BEIJ | 3 S    | 0457.0        | 0502.8                     | 10.0              | 17.9         | 13.8                   |

# INTERVALS OF SOLAR RADIO EMISSION PATROL OBSERVATION

JUNE 1993

| Day | BEIJ    | PURP    | URUM    | YUWA    |
|-----|---------|---------|---------|---------|
|     | From To | From To | From To | From To |
|     | 2840    | 2700    | 9375    | 2840    |

|    |           |           |
|----|-----------|-----------|
| 1  | 0000 1030 | 0116 0815 |
| 2  | 2216 2400 | 0044 0814 |
| 3  | 0000 0705 | 0044 0814 |
| 4  | 2223 2400 | 0705 0813 |
| 5  | 0000 1007 | 0042 0811 |
| 6  | 2232 2400 | 0044 0820 |
| 7  | 0000 0646 | 0033 0830 |
| 8  | 0041 0750 | 0030 0823 |
| 9  | 2238 2400 | 0025 0815 |
| 10 | 0000 0929 | 0030 0820 |
| 11 | 2222 2400 | 0035 0817 |
| 12 | 2228 2400 | 0042 0816 |
| 13 | 0000 0742 | 0037 0830 |
| 14 | 0000 1006 | 0045 0620 |
| 15 | 2232 2400 | 0058 0820 |
| 16 | 0000 1023 | 0040 0820 |
| 17 | 2231 2400 | 0052 0815 |
| 18 | 0000 1025 | 0030 0810 |
| 19 | 2233 2400 | 0025 0820 |
| 20 | 0000 1015 | 0035 0837 |
|    | 2215 2400 |           |
|    | 0000 1019 |           |
|    | 2302 2400 |           |

# INTERVALS OF SOLAR RADIO EMISSION PATROL OBSERVATION

JUNE 1993

| Day     | BEIJ    | PURP    | URUM    | YUMN    |
|---------|---------|---------|---------|---------|
| From To | From To | From To | From To | From To |
| 2840    | 2700    | 9375    | 2840    |         |

|    |           |           |
|----|-----------|-----------|
| 21 | 0000 1043 | 0028 0810 |
| 22 | 2234 2400 | 0054 0819 |
| 23 | 2218 2400 |           |
| 24 | 0000 0620 |           |
| 25 | 2225 2400 |           |
| 26 | 0000 1015 |           |
| 27 | 2215 2400 |           |
| 28 | 0000 1000 | 0335 0810 |
| 29 | 2217 2400 |           |
| 30 | 0000 0950 | 0048 0825 |
|    | 2229 2400 |           |
|    | 0000 1000 | 0037 0825 |
|    | 2238 2400 |           |
|    | 0000 1022 | 0045 0810 |
|    | 2232 2400 |           |
|    | 0000 1036 | 0100 0245 |
|    | 2224 2400 |           |
|    | 0000 1039 | 0145 0804 |
|    | 2227 2400 |           |

# COSMIC RAY NEUTRON INTENSITY Real Counts: 256 Times (Tabulated Counts Plus 1500)

U.T. Hours at End of Interval

JUN 1993

| Day                   | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24    | Mean  | N  |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|-------|----|
| 1                     | 437 | 436 | 439 | 438 | 443 | 441 | 434 | 433 | 427 | 429 | 432 | 428 | 444 | 434 | 432 | 441 | 439 | 444 | 444 | 449 | 456 | 453 | 449 | 448   | 439.5 | 24 |
| 2                     | 457 | 453 | 452 | 451 | 453 | 445 | 434 | 435 | 441 | 441 | 444 | 440 | 445 | 436 | 435 | 447 | 447 | 447 | 450 | 452 | 448 | 446 | 443 | 448.2 | 24    |    |
| 3                     | 443 | 441 | 454 | 447 | 447 | 442 | 436 | 449 | 441 | 441 | 442 | 444 | 445 | 436 | 436 | 443 | 437 | 429 | 422 | 434 | 426 | 423 | 423 | 443   | 437.4 | 24 |
| 4                     | 417 | 436 | 452 | 441 | 437 | 439 | 430 | 429 | 457 | 435 | 431 | 429 | 432 | 431 | 432 | 417 | 418 | 418 | 412 | 422 | 413 | 414 | 416 | 418   | 428.3 | 24 |
| 5                     | 417 | 417 | 419 | 424 | 424 | 419 | 410 | 420 | 426 | 415 | 411 | 413 | 429 | 421 | 410 | 418 | 417 | 417 | 416 | 416 | 422 | 423 | 434 | 427   | 418.3 | 24 |
| 6                     | 421 | 427 | 422 | 420 | 426 | 427 | 430 | 422 | 416 | 418 | 418 | 407 | 413 | 409 | 416 | 411 | 409 | 418 | 416 | 416 | 426 | 424 | 430 | 426   | 419.9 | 24 |
| 7                     | 433 | 426 | 419 | 420 | 418 | 417 | 413 | 416 | 412 | 418 | 412 | 410 | 418 | 414 | 418 | 417 | 417 | 416 | 416 | 422 | 423 | 434 | 427 | 436   | 422.8 | 24 |
| 8                     | 425 | 423 | 432 | 429 | 426 | 415 | 411 | 413 | 429 | 421 | 410 | 418 | 414 | 414 | 418 | 422 | 422 | 426 | 426 | 422 | 427 | 436 | 429 | 428   | 430.1 | 24 |
| 9                     | 440 | 426 | 438 | 440 | 433 | 432 | 434 | 433 | 426 | 429 | 423 | 423 | 423 | 424 | 423 | 427 | 427 | 426 | 426 | 423 | 425 | 436 | 429 | 428   | 430.1 | 24 |
| 10                    | 434 | 436 | 434 | 433 | 432 | 434 | 436 | 447 | 440 | 435 | 424 | 421 | 410 | 421 | 421 | 419 | 419 | 418 | 421 | 421 | 426 | 427 | 448 | 454   | 429.9 | 24 |
| 11                    | 444 | 447 | 447 | 452 | 453 | 444 | 441 | 431 | 428 | 426 | 423 | 416 | 427 | 427 | 427 | 427 | 427 | 426 | 426 | 423 | 430 | 436 | 437 | 442   | 434.5 | 24 |
| 12                    | 438 | 439 | 446 | 446 | 446 | 444 | 445 | 442 | 432 | 431 | 434 | 427 | 430 | 418 | 421 | 421 | 423 | 423 | 421 | 418 | 422 | 422 | 427 | 427   | 430.5 | 24 |
| 13                    | 428 | 429 | 436 | 428 | 426 | 425 | 427 | 427 | 416 | 418 | 414 | 424 | 424 | 419 | 418 | 409 | 421 | 415 | 412 | 417 | 416 | 414 | 420 | 419   | 422.3 | 24 |
| 14                    | 428 | 429 | 438 | 428 | 426 | 425 | 427 | 427 | 417 | 415 | 417 | 418 | 415 | 415 | 418 | 417 | 418 | 418 | 418 | 417 | 416 | 414 | 422 | 429   | 419.4 | 24 |
| 15                    | 428 | 429 | 432 | 428 | 426 | 425 | 427 | 427 | 417 | 415 | 417 | 418 | 415 | 415 | 418 | 417 | 418 | 418 | 418 | 417 | 416 | 414 | 422 | 429   | 419.4 | 24 |
| 16                    | 411 | 417 | 419 | 422 | 410 | 413 | 425 | 421 | 421 | 415 | 415 | 415 | 415 | 415 | 415 | 415 | 415 | 415 | 415 | 415 | 415 | 415 | 415 | 415   | 415.5 | 24 |
| 17                    | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422   | 422.8 | 24 |
| 18                    | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422   | 422.8 | 24 |
| 19                    | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422   | 422.8 | 24 |
| 20                    | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422   | 422.8 | 24 |
| 21                    | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422   | 422.8 | 24 |
| 22                    | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422   | 422.8 | 24 |
| 23                    | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422   | 422.8 | 24 |
| 24                    | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422   | 422.8 | 24 |
| MONTHLY MEAN=422.8101 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |       |       |    |
| 24                    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |       |       |    |
| 23                    | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423   | 423   | 24 |
| 22                    | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422   | 422   | 24 |
| 21                    | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421   | 421   | 24 |
| 20                    | 420 | 420 | 420 | 420 | 420 | 420 | 420 | 420 | 420 | 420 | 420 | 420 | 420 | 420 | 420 | 420 | 420 | 420 | 420 | 420 | 420 | 420 | 420 | 420   | 420   | 24 |
| 19                    | 419 | 419 | 419 | 419 | 419 | 419 | 419 | 419 | 419 | 419 | 419 | 419 | 419 | 419 | 419 | 419 | 419 | 419 | 419 | 419 | 419 | 419 | 419 | 419   | 419   | 24 |
| 18                    | 418 | 418 | 418 | 418 | 418 | 418 | 418 | 418 | 418 | 418 | 418 | 418 | 418 | 418 | 418 | 418 | 418 | 418 | 418 | 418 | 418 | 418 | 418 | 418   | 418   | 24 |
| 17                    | 417 | 417 | 417 | 417 | 417 | 417 | 417 | 417 | 417 | 417 | 417 | 417 | 417 | 417 | 417 | 417 | 417 | 417 | 417 | 417 | 417 | 417 | 417 | 417   | 417   | 24 |
| 16                    | 416 | 416 | 416 | 416 | 416 | 416 | 416 | 416 | 416 | 416 | 416 | 416 | 416 | 416 | 416 | 416 | 416 | 416 | 416 | 416 | 416 | 416 | 416 | 416   | 416   | 24 |
| 15                    | 415 | 415 | 415 | 415 | 415 | 415 | 415 | 415 | 415 | 415 | 415 | 415 | 415 | 415 | 415 | 415 | 415 | 415 | 415 | 415 | 415 | 415 | 415 | 415   | 415   | 24 |
| 14                    | 414 | 414 | 414 | 414 | 414 | 414 | 414 | 414 | 414 | 414 | 414 | 414 | 414 | 414 | 414 | 414 | 414 | 414 | 414 | 414 | 414 | 414 | 414 | 414   | 414   | 24 |
| 13                    | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 413 | 413   | 413   | 24 |
| 12                    | 412 | 412 | 412 | 412 | 412 | 412 | 412 | 412 | 412 | 412 | 412 | 412 | 412 | 412 | 412 | 412 | 412 | 412 | 412 | 412 | 412 | 412 | 412 | 412   | 412   | 24 |
| 11                    | 411 | 411 | 411 | 411 | 411 | 411 | 411 | 411 | 411 | 411 | 411 | 411 | 411 | 411 | 411 | 411 | 411 | 411 | 411 | 411 | 411 | 411 | 411 | 411   | 411   | 24 |
| 10                    | 410 | 410 | 410 | 410 | 410 | 410 | 410 | 410 | 410 | 410 | 410 | 410 | 410 | 410 | 410 | 410 | 410 | 410 | 410 | 410 | 410 | 410 | 410 | 410   | 410   | 24 |
| 9                     | 409 | 409 | 409 | 409 | 409 | 409 | 409 | 409 | 409 | 409 | 409 | 409 | 409 | 409 | 409 | 409 | 409 | 409 | 409 | 409 | 409 | 409 | 409 | 409   | 409   | 24 |
| 8                     | 408 | 408 | 408 | 408 | 408 | 408 | 408 | 408 | 408 | 408 | 408 | 408 | 408 | 408 | 408 | 408 | 408 | 408 | 408 | 408 | 408 | 408 | 408 | 408   | 408   | 24 |
| 7                     | 407 | 407 | 407 | 407 | 407 | 407 | 407 | 407 | 407 | 407 | 407 | 407 | 407 | 407 | 407 | 407 | 407 | 407 | 407 | 407 | 407 | 407 | 407 | 407   | 407   | 24 |
| 6                     | 406 | 406 | 406 | 406 | 406 | 406 | 406 | 406 | 406 | 406 | 406 | 406 | 406 | 406 | 406 | 406 | 406 | 406 | 406 | 406 | 406 | 406 | 406 | 406   | 406   | 24 |
| 5                     | 405 | 405 | 405 | 405 | 405 | 405 | 405 | 405 | 405 | 405 | 405 | 405 | 405 | 405 | 405 | 405 | 405 | 405 | 405 | 405 | 405 | 405 | 405 | 405   | 405   | 24 |
| 4                     | 404 | 404 | 404 | 404 | 404 | 404 | 404 | 404 | 404 | 404 | 404 | 404 | 404 | 404 | 404 | 404 | 404 | 404 | 404 | 404 | 404 | 404 | 404 | 404   | 404   | 24 |
| 3                     | 403 | 403 | 403 | 403 | 403 | 403 | 403 | 403 | 403 | 403 | 403 | 403 | 403 | 403 | 403 | 403 | 403 | 403 | 403 | 403 | 403 | 403 | 403 | 403   | 403   | 24 |
| 2                     | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402   | 402   | 24 |
| 1                     | 401 | 401 | 401 | 401 | 401 | 401 | 401 | 401 | 401 | 401 | 401 | 401 | 401 | 401 | 401 | 401 | 401 | 401 | 401 | 401 | 401 | 401 | 401 | 401   | 401   | 24 |
| MONTHLY MEAN=422.8101 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |       |       |    |
| 24                    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |       |       |    |
| 23                    | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423 | 423   | 423   | 24 |
| 22                    | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422 | 422   | 422   | 24 |
| 21                    | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421 | 421   | 421   | 24 |
| 20                    | 420 | 420 | 420 | 420 | 420 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |       |       |    |

NORTLY MEAN=422.810

MONTHLY MEAN DAILY VARIATION FOR 30 COMPLETE DAYS DEVIATIONS FROM AVERAGE:422.810

(1-12) 4.62 5.06 5.56 6.82 5.42 4.36 3.19 1.46 -0.46 -0.21 -1.41 -3.38  
(13-24) -3.54 -4.94 -3.18 -3.68 -3.98 -4.01 -3.41 -4.18 -2.08 -2.01 1.59 2.38

HARMONIC COMPONENTS (ORDER, COS, SIN, AMPLITUDE, MAX.-MIN)

U.T.=(1) 3.20 3.98 5.11 3.41 (2) 0.08 1.13 1.13 2.86 (3) 0.23 0.18 0.30 0.84 (4) -0.04 -0.34 0.34 4.39  
L.T.=(1) -5.06 0.78 5.11 11.41 (2) 0.94 -0.63 1.13 10.86 (3) 0.23 0.18 0.30 0.84 (4) 0.31 0.13 0.34 0.39

COSMIC RAY MESON INTENSITY  
VERTICAL COMPONENT  
Real Counts: 128 Times (Tabulated Counts Plus 3000)

JUN 1993

U.T. Hours at End of Interval

| Day                  | 1   | 2     | 3   | 4     | 5   | 6     | 7   | 8     | 9   | 10    | 11  | 12    | 13  | 14    | 15  | 16    | 17  | 18    | 19  | 20    | 21  | 22    | 23    | 24    | Mean  | N     |    |
|----------------------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-------|-------|-------|-------|----|
| 1                    | -19 | -5    | -3  | -3    | -24 | -17   | -13 | -26   | -3  | -15   | -32 | -31   | -24 | -29   | -26 | -22   | -22 | -26   | -20 | -8    | -9  | -3    | -31   | -20   | -18.0 | 24    |    |
| 2                    | -13 | 1     | -19 | -18   | -1  | -6    | -7  | -12   | -6  | -4    | -21 | -10   | -3  | -16   | -5  | -6    | -7  | 8     | 6   | -7    | -10 | 5     | -7    | -6.0  | 24    |       |    |
| 3                    | -13 | 5     | 18  | 30    | 0   | 7     | -10 | -6    | -4  | -9    | -15 | -17   | -20 | -31   | -26 | -16   | -10 | -16   | -15 | -28   | -18 | -14   | -17   | -9.1  | 24    |       |    |
| 4                    | -20 | -7    | -29 | -29   | -31 | -21   | -16 | -27   | -39 | -33   | -34 | -24   | -28 | -34   | -39 | -24   | -41 | -39   | -44 | -20   | -24 | -28   | -15   | -29.6 | 24    |       |    |
| 5                    | -34 | -24   | -33 | -20   | -28 | -25   | -34 | -28   | -26 | -26   | -45 | -42   | -38 | -34   | -39 | -39   | -34 | -39   | -45 | -30   | -38 | -30   | -18   | -23.9 | 24    |       |    |
| 6                    | -7  | -29   | -29 | -30   | -18 | -31   | -25 | -17   | -30 | -33   | -35 | -36   | -36 | -35   | -36 | -37   | -27 | -27   | -28 | -16   | -32 | -32   | -17   | -14.0 | 24    |       |    |
| 7                    | -25 | -29   | -29 | -30   | -18 | -31   | -25 | -17   | -30 | -33   | -35 | -36   | -36 | -35   | -36 | -37   | -27 | -27   | -28 | -16   | -32 | -32   | -17   | -14.0 | 24    |       |    |
| 8                    | -4  | -4    | -13 | -13   | -15 | -13   | -7  | -30   | -30 | -10   | -20 | -10   | -21 | -14   | -5  | -5    | -21 | -21   | -25 | -18   | -17 | -13   | -14   | -5    | -23.0 | 24    |    |
| 9                    | -5  | 3     | -3  | -5    | 19  | 9     | 4   | -1    | -7  | -19   | -25 | -10   | -25 | -10   | -6  | -16   | -17 | -9    | -15 | -6    | -9  | 3     | -10   | -2    | -11.2 | 24    |    |
| 10                   | 3   | 7     | 10  | 42    | 44  | 33    | 25  | 16    | 5   | 13    | -13 | -22   | -36 | -39   | -15 | -24   | -27 | -18   | -16 | -12   | -9  | -14   | 11    | -2.0  | 24    |       |    |
| 11                   | 23  | 17    | 22  | 29    | 17  | 15    | 17  | 8     | -11 | -19   | -14 | -18   | -23 | -31   | -17 | -20   | -24 | -20   | -27 | -15   | -14 | -16   | -23   | -6.4  | 24    |       |    |
| 12                   | -12 | 16    | 33  | 24    | 10  | 14    | 8   | -8    | -7  | -22   | -33 | -31   | -32 | -27   | -28 | -34   | -37 | -32   | -32 | -15   | -22 | -15   | -17   | -14.0 | 24    |       |    |
| 13                   | 8   | -6    | -10 | -6    | -2  | -10   | -11 | -11   | -22 | -25   | -33 | -35   | -36 | -36   | -35 | -36   | -37 | -27   | -27 | -28   | -16 | -32   | -32   | -17   | -14.0 | 24    |    |
| 14                   | -22 | -12   | -12 | -2    | -10 | -14   | -22 | -21   | -11 | -24   | -20 | -24   | -27 | -27   | -27 | -24   | -24 | -28   | -32 | -20   | -24 | -25   | -25   | -23.2 | 24    |       |    |
| 15                   | -28 | -30   | -11 | -10   | -16 | -30   | -19 | -3    | -3  | -23   | -37 | -31   | -31 | -34   | -25 | -28   | -32 | -28   | -32 | -25   | -34 | -34   | -26   | -23.9 | 24    |       |    |
| 16                   | -20 | -33   | -19 | -8    | -18 | -6    | -9  | -28   | -21 | -16   | -18 | -25   | -25 | -26   | -28 | -18   | -38 | -32   | -28 | -31   | -31 | -27   | -17   | -21.4 | 24    |       |    |
| 17                   | -6  | -7    | -9  | -11   | -25 | -24   | -19 | -30   | -24 | -23   | -19 | -26   | -12 | -15   | -12 | 0     | -6  | -2    | -12 | -9    | 5   | 8     | -10.7 | 24    |       |       |    |
| 18                   | -20 | -33   | -19 | -8    | -18 | -6    | -9  | -28   | -21 | -16   | -18 | -25   | -25 | -26   | -28 | -18   | -38 | -32   | -28 | -31   | -31 | -27   | -17   | -26.6 | 24    |       |    |
| 19                   | -28 | -30   | -11 | -10   | -16 | -30   | -19 | -3    | -3  | -23   | -37 | -31   | -31 | -34   | -25 | -28   | -32 | -28   | -32 | -25   | -34 | -34   | -26   | -23.9 | 24    |       |    |
| 20                   | -16 | -18   | -16 | -16   | -16 | -16   | -16 | -16   | -16 | -16   | -16 | -16   | -16 | -16   | -16 | -16   | -16 | -16   | -16 | -16   | -16 | -16   | -16   | -18.0 | 24    |       |    |
| 21                   | -8  | -9    | -9  | -9    | -9  | -9    | -9  | -9    | -9  | -9    | -9  | -9    | -9  | -9    | -9  | -9    | -9  | -9    | -9  | -9    | -9  | -9    | -9    | -18.0 | 24    |       |    |
| 22                   | -20 | -26   | -20 | -24   | -17 | -15   | -17 | -22   | -20 | -24   | -24 | -27   | -27 | -27   | -27 | -27   | -27 | -27   | -27 | -27   | -27 | -27   | -27   | -27   | -18.0 | 24    |    |
| 23                   | -19 | -26   | -19 | -23   | -16 | -14   | -16 | -22   | -20 | -24   | -24 | -27   | -27 | -27   | -27 | -27   | -27 | -27   | -27 | -27   | -27 | -27   | -27   | -27   | -18.0 | 24    |    |
| 24                   | -15 | -20   | -15 | -23   | -16 | -14   | -16 | -22   | -20 | -24   | -24 | -27   | -27 | -27   | -27 | -27   | -27 | -27   | -27 | -27   | -27 | -27   | -27   | -27   | -18.0 | 24    |    |
| MONTHLY MEAN=-17.499 | -13 | -12.5 | -13 | -12.5 | -13 | -12.5 | -13 | -12.5 | -13 | -12.5 | -13 | -12.5 | -13 | -12.5 | -13 | -12.5 | -13 | -12.5 | -13 | -12.5 | -13 | -12.5 | -13   | -12.5 | -13   | -12.5 | 24 |

MONTHLY MEAN=-17.490

MONTHLY MEAN DAILY VARIATION FOR 30 COMPLETE DAYS DEVIATIONS FROM AVERAGE:-17.490

(1-12) 4.29 7.42 10.96 13.89 9.12 12.19 6.99 2.69 1.52 1.56 -3.38 -6.94  
 (13-24) -7.74 -8.48 -6.81 -7.41 -8.68 -4.81 -7.44 -3.94 -0.78 -0.28 0.32  
 HARMONIC COMPONENTS (ORDER, COS, SIN, AMPLITUDE, MAX.-MR.)

U.T.=(1 5.26 7.76 9.36 3.73) (2 -1.57 1.50 2.18 4.54) (3 -0.64 0.35 0.64 3.26) (4 -0.85 -0.36 0.93 3.39)  
 L.T.=(1 -9.34 0.67 9.36 11.73) (2 2.09 0.61 2.18 0.54) (3 -0.54 0.35 0.64 3.26) (4 0.74 -0.66 0.93 5.39)

# COSMIC RAY MESON INTENSITY Real Relative Intensity: 0.1% Times (Tabulated Value Plus 1000)

JUN 1993

U.T. Hours at End of Interval

| Day | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24   | Mean |      |
|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|------|------|------|
| 1   | 16 | 17 | 20 | 21 | 20 | 17 | 17 | 17 | 18 | 18 | 19 | 17 | 16 | 19 | 19 | 20 | 23 | 20 | 19 | 18 | 24 | 17 | 23 | 18   | 18.9 |      |
| 2   | 19 | 20 | 19 | 17 | 21 | 17 | 15 | 17 | 15 | 13 | 13 | 14 | 16 | 18 | 17 | 19 | 18 | 19 | 17 | 16 | 18 | 17 | 18 | 18   | 17.1 |      |
| 3   | 15 | 16 | 16 | 18 | 16 | 16 | 16 | 16 | 15 | 14 | 13 | 14 | 17 | 14 | 15 | 17 | 16 | 13 | 15 | 13 | 13 | 14 | 15 | 12   | 14.9 |      |
| 4   | 16 | 19 | 15 | 15 | 17 | 15 | 17 | 15 | 12 | 16 | 13 | 14 | 11 | 10 | 11 | 6  | 10 | 8  | 7  | 6  | 8  | 9  | 11 | 11   | 12.2 |      |
| 5   | 11 | 10 | 10 | 9  | 11 | 7  | 9  | 9  | 7  | 11 | 10 | 12 | 12 | 10 | 9  | 10 | 12 | 11 | 11 | 11 | 14 | 14 | 15 | 14   | 10.8 |      |
| 6   | 12 | 13 | 13 | 11 | 13 | 12 | 9  | 12 | 9  | 12 | 12 | 9  | 11 | 9  | 11 | 11 | 12 | 10 | 13 | 12 | 13 | 14 | 14 | 14   | 11.7 |      |
| 7   | 12 | 14 | 13 | 13 | 12 | 9  | 10 | 11 | 11 | 11 | 10 | 10 | 13 | 12 | 11 | 13 | 13 | 11 | 12 | 11 | 13 | 13 | 13 | 15   | 10   |      |
| 8   | 13 | 17 | 11 | 15 | 14 | 14 | 10 | 12 | 8  | 6  | 9  | 12 | 11 | 13 | 11 | 10 | 13 | 11 | 12 | 11 | 12 | 12 | 12 | 11   | 11.8 |      |
| 9   | 14 | 10 | 14 | 14 | 17 | 16 | 15 | 12 | 10 | 11 | 11 | 13 | 12 | 12 | 12 | 11 | 14 | 15 | 12 | 15 | 13 | 13 | 17 | 14   | 13.2 |      |
| 10  | 12 | 14 | 13 | 16 | 16 | 17 | 17 | 14 | 15 | 14 | 13 | 12 | 8  | 10 | 9  | 10 | 11 | 11 | 11 | 11 | 12 | 14 | 15 | 15   | 13.0 |      |
| 11  | 17 | 19 | 19 | 17 | 14 | 16 | 15 | 13 | 12 | 9  | 10 | 6  | 9  | 11 | 9  | 11 | 11 | 12 | 10 | 11 | 11 | 14 | 15 | 14   | 12.7 |      |
| 12  | 14 | 14 | 16 | 15 | 15 | 16 | 15 | 12 | 10 | 8  | 5  | 7  | 11 | 8  | 9  | 9  | 10 | 9  | 8  | 9  | 9  | 7  | 8  | 12   | 10.9 |      |
| 13  | 11 | 11 | 9  | 14 | 10 | 11 | 10 | 8  | 8  | 5  | 8  | 8  | 7  | 7  | 8  | 7  | 8  | 10 | 12 | 9  | 9  | 11 | 11 | 8    | 9.2  |      |
| 14  | 11 | 11 | 14 | 12 | 13 | 13 | 10 | 10 | 11 | 8  | 10 | 12 | 10 | 12 | 10 | 10 | 10 | 10 | 10 | 9  | 10 | 8  | 12 | 10   | 10.7 |      |
| 15  | 11 | 11 | 12 | 12 | 11 | 10 | 8  | 8  | 11 | 7  | 7  | 8  | 5  | 7  | 10 | 9  | 7  | 11 | 6  | 10 | 10 | 8  | 9  | 9    | 9.0  |      |
| 16  | 8  | 9  | 11 | 12 | 11 | 11 | 15 | 12 | 13 | 10 | 9  | 12 | 12 | 15 | 12 | 10 | 14 | 12 | 13 | 15 | 12 | 11 | 14 | 11.8 | 24   |      |
| 17  | 12 | 13 | 14 | 14 | 13 | 11 | 13 | 10 | 10 | 9  | 10 | 9  | 10 | 8  | 10 | 10 | 10 | 11 | 14 | 13 | 13 | 10 | 11 | 12   | 11.3 |      |
| 18  | 13 | 11 | 12 | 14 | 12 | 8  | 9  | 8  | 11 | 7  | 8  | 7  | 4  | 4  | 5  | 9  | 8  | 8  | 9  | 9  | 9  | 10 | 8  | 9    | 8.8  |      |
| 19  | 11 | 10 | 9  | 10 | 8  | 8  | 7  | 8  | 9  | 4  | 4  | 8  | 7  | 4  | 6  | 8  | 7  | 7  | 7  | 7  | 6  | 8  | 10 | 8    | 7.5  |      |
| 20  | 10 | 11 | 10 | 9  | 8  | 11 | 8  | 9  | 5  | 5  | 4  | 5  | 6  | 5  | 3  | 7  | 8  | 5  | 3  | 7  | 8  | 8  | 10 | 9    | 7.3  |      |
| 21  | 10 | 8  | 11 | 9  | 10 | 8  | 8  | 7  | 6  | 7  | 5  | 7  | 6  | 6  | 7  | 6  | 9  | 9  | 9  | 9  | 8  | 10 | 11 | 11   | 8.2  |      |
| 22  | 9  | 9  | 10 | 12 | 12 | 12 | 12 | 12 | 13 | 12 | 8  | 11 | 9  | 11 | 11 | 10 | 13 | 11 | 11 | 17 | 8  | 15 | 15 | 14   | 11.5 |      |
| 23  | 14 | 16 | 15 | 14 | 13 | 14 | 14 | 10 | 12 | 8  | 11 | 10 | 12 | 11 | 13 | 13 | 12 | 11 | 12 | 13 | 10 | 11 | 11 | 14   | 12.3 |      |
| 24  | 14 | 13 | 14 | 13 | 14 | 13 | 15 | 12 | 11 | 11 | 12 | 11 | 12 | 11 | 10 | 8  | 10 | 10 | 11 | 12 | 10 | 12 | 10 | 12   | 11.6 |      |
| 25  | 14 | 14 | 11 | 11 | 9  | 10 | 10 | 11 | 10 | 10 | 7  | 9  | 9  | 9  | 11 | 10 | 9  | 8  | 8  | 9  | 7  | 6  | 8  | 7    | 9.5  |      |
| 26  | 7  | 8  | 8  | 11 | 8  | 6  | 11 | 9  | 8  | 7  | 6  | 6  | 8  | 10 | 8  | 6  | 7  | 9  | 6  | 7  | 6  | 7  | 7  | 7    | 7.6  |      |
| 27  | 11 | 8  | 9  | 8  | 11 | 8  | 6  | 9  | 8  | 10 | 7  | 11 | 9  | 10 | 10 | 8  | 11 | 8  | 7  | 8  | 9  | 9  | 9  | 10   | 8.9  |      |
| 28  | 9  | 11 | 11 | 11 | 12 | 10 | 10 | 10 | 11 | 10 | 10 | 12 | 15 | 11 | 13 | 10 | 11 | 10 | 13 | 10 | 14 | 14 | 12 | 12   | 11.3 |      |
| 29  | 14 | 14 | 14 | 12 | 15 | 14 | 12 | 11 | 12 | 14 | 13 | 15 | 15 | 18 | 15 | 14 | 14 | 13 | 12 | 15 | 10 | 16 | 15 | 15   | 13.8 |      |
| 30  | 14 | 15 | 18 | 15 | 17 | 18 | 14 | 16 | 13 | 12 | 10 | 12 | 16 | 16 | 16 | 17 | 14 | 16 | 13 | 13 | 11 | 12 | 12 | 14   | 12   | 14.3 |

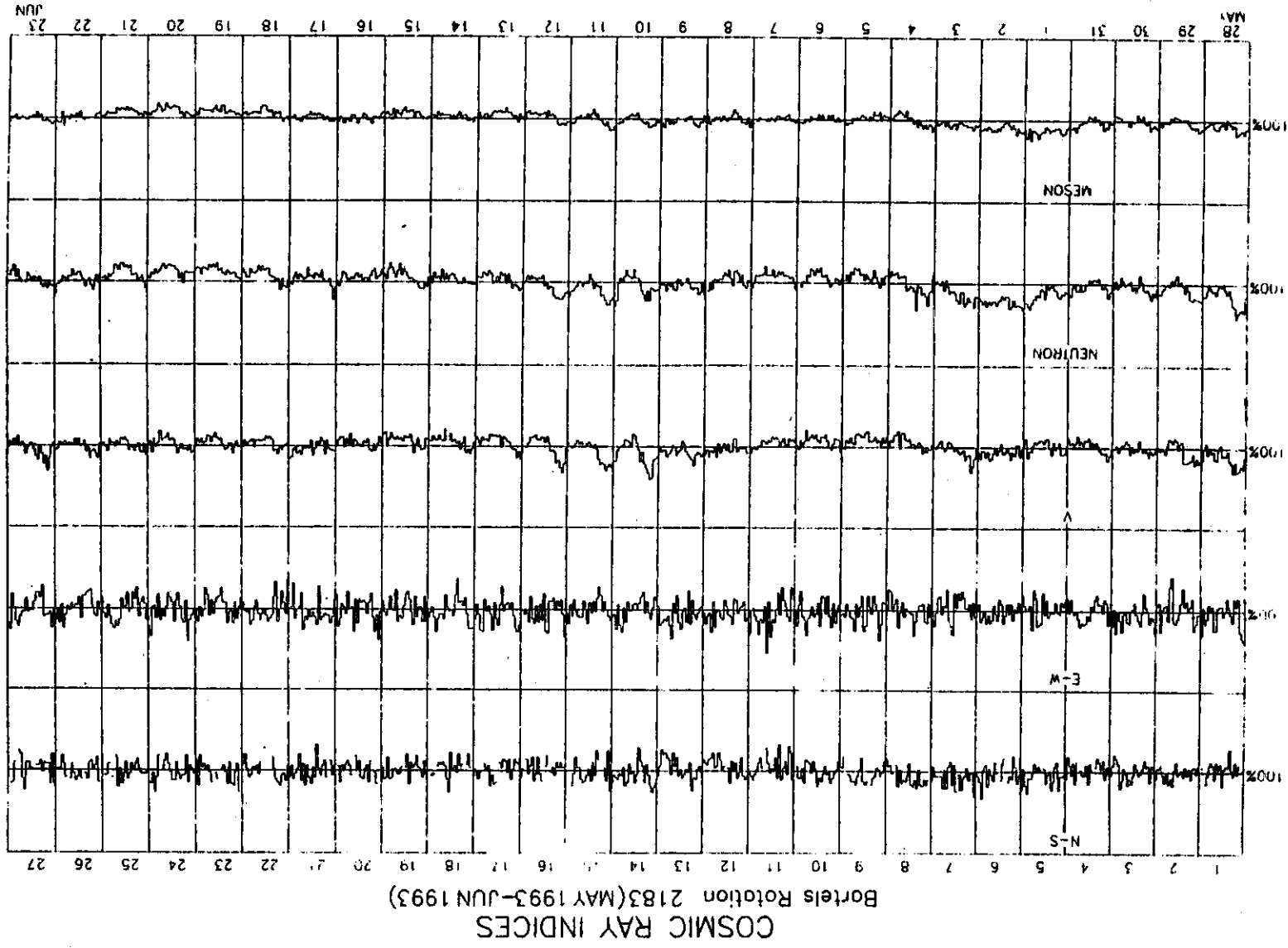
MONTHLY MEAN= 11.449

MONTHLY MEAN DAILY VARIATION FOR 30 COMPLETE DAYS DEVIATIONS FROM AVERAGE: 11.449

(1-12) 1.02 1.42 1.55 1.66 1.65 0.82 0.45 -0.15 -0.65 -1.45 -1.72 -1.02  
(13-24) -0.72 -0.82 -0.82 -0.75 -0.08 -0.62 -0.48 -0.35 0.22 0.85 0.45

HARMONIC COMPONENTS (ORDER, COS, SIN, AMPLITUDE, MAX.-HR)

U.T.=(1 1.09 0.53 1.21 1.72) (2 -0.11 0.56 0.57 3.36) (3 -0.06 -0.15 0.16 5.53) (4 0.03 -0.04 0.05 5.10)  
L.T.=(1 -1.00 0.66 1.21 9.72) (2 0.54 -0.18 0.57 11.36) (3 -0.06 -0.15 0.16 5.53) (4 0.02 0.05 0.05 1.10)



# SUDDEN IONOSPHERIC DISTURBANCES (D REGION)

JUNE 1993

| Day | Sta  | Start<br>(UT) | Max<br>(UT) | End<br>(UT) | Imp | SPA   |     | SFA<br>LF   |
|-----|------|---------------|-------------|-------------|-----|-------|-----|-------------|
|     |      |               |             |             |     | LF    | VLF |             |
| 01  | YUNN | 0203          | 0205        | 0212        | 1   | - 1.6 |     |             |
| 01  | LINT | 0444          | 0453        | 0545        | 1   | - 1.5 | -12 | 0           |
| 02  | YUNN | 0017          | 0019        | 0027        | 1+  | - 2.5 |     |             |
| 02  | LINT | 0133          | 0158        | 0209D       | 1-  | - 0.2 | - 8 | - 0.7       |
| 02  | LINT | 0209          | 0231        | 0255        | 1-  | - 0.3 | - 8 | - 0.5       |
| 03  | YUNN | 0054          | 0056        | 0105        | 1   | - 1.9 |     |             |
| 03  | LINT | 2320          | 2339        | 0040        | 2-  | - 3.5 | - 8 | + 5.6       |
| 05  | LINT | 0810          | 0820        | 0925        | 1   | - 1.1 | -11 | + 1.2       |
| 06  | LINT | 0108          | 0115        | 0135U       | 1-  | - 0.4 | 0   | + 0.3       |
| 06  | YUNN | 0111          | 0113        | 0122        | 1-  | - 0.9 |     |             |
| 07  | LINT | 0544          | 0553        | 0602D       | 1+  | - 2.7 | -27 | - 2.3       |
| 07  | LINT | 0602          | 0608        | 0705        | 1-  | - 0.7 | -18 | + 1.0       |
| 08  | LINT | 0207          | 0217        | 0245D       | 2-  | - 3.6 | -19 | - 2.5       |
| 08  | LINT | 0245          | 0255        | 0355        | 1-  | - 0.3 | - 5 | + 1.2       |
| 08  | YUNN | 0618          | 0620        | 0627        | 1-  | - 0.8 |     |             |
| 09  | YUNN | 0111          | 0113        | 0120        | 1   | - 1.5 |     |             |
| 09  | LINT | 0246          | 0306        | 0345        | 1-  | - 1.0 | - 6 | - 1.7       |
| 09  | LINT | 0810          | 0823        | 0925        | 1+  | - 2.4 | -19 | - 1.0       |
| 10  | LINT | 0543          | 0609        | 0735        | 2+  | - 5.8 | -63 | - 0.6,+ 2.9 |
| 12  | YUNN | 0115          | 0116        | 0119        | 1-  | - 1.0 |     |             |
| 12  | YUNN | 0123          | 0125        | 0129        | 1-  | - 0.8 |     |             |
| 12  | LINT | 0405          | 0416        | 0440        | 1-  | - 0.5 | - 4 | + 1.1       |
| 19  | LINT | 2345          | 2355        | 0033        | 2-  | - 3.9 | - 6 | + 2.2       |
| 20  | YUNN | 0929          | 0931        | 0936        | 1   | - 1.8 |     |             |
| 22  | YUNN | 0327          | 0329        | 0338        | 1-  | - 0.6 |     |             |
| 23  | YUNN | 0455          | 0459        | 0507        | 1   | - 1.2 |     |             |
| 25  | YUNN | 0028          | 0031        | 0037        | 1   | - 1.9 |     |             |
| 25  | LINT | 0310          | 0326        | 0420D       | 3-  | - 7.0 | -52 | - 2.6,+ 5.2 |
| 25  | YUNN | 0311          | 0325        | 0339        | 2   | - 4.8 |     |             |
| 26  | LINT | 0146          | 0150        | 0225        | 1+  | - 2.5 | -17 | - 0.9       |
| 26  | LINT | 0936          | 0945        | 1025        | 1   | - 1.8 | -11 | + 1.6       |
| 27  | LINT | 0433          | 0440        | 0530        | 2-  | - 4.0 | -21 | - 4.0,+ 4.8 |
| 28  | LINT | 0107          | 0130        | 0225        | 1   | - 1.4 | -14 | - 2.3,+ 0.7 |
| 30  | LINT | 0442          | 0510        | 0555        | 1   | - 1.3 | -10 | - 0.8,+ 0.3 |

# GEOMAGNETIC ACTIVITY INDICES K AND A<sub>K</sub>

JUNE 1993

BGMO

## Three-Hourly Indices K

| Day | Three-Hourly Indices K |     |     |      |       |       |       |       |  |  | Sum | A <sub>K</sub> |
|-----|------------------------|-----|-----|------|-------|-------|-------|-------|--|--|-----|----------------|
|     | 0-3                    | 3-6 | 6-9 | 9-12 | 12-15 | 15-18 | 18-21 | 21-24 |  |  |     |                |

|    |   |   |   |   |   |   |   |   |    |    |
|----|---|---|---|---|---|---|---|---|----|----|
| 1  | 1 | 2 | 1 | 1 | 1 | 0 | 0 | 0 | 6  | 2  |
| 2  | 1 | 1 | 1 | 3 | 2 | 1 | 2 | 2 | 13 | 6  |
| 3  | 2 | 3 | 5 | 4 | 4 | 3 | 2 | 0 | 23 | 18 |
| 4  | 4 | 4 | 4 | 6 | 4 | 3 | 4 | 4 | 33 | 32 |
| 5  | 4 | 5 | 3 | 3 | 4 | 3 | 3 | 2 | 27 | 21 |
| 6  | 3 | 4 | 4 | 4 | 3 | 3 | 4 | 3 | 28 | 21 |
| 7  | 3 | 3 | 4 | 4 | 3 | 3 | 3 | 3 | 26 | 18 |
| 8  | 3 | 3 | 2 | 3 | 2 | 2 | 2 | 1 | 18 | 10 |
| 9  | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 15 | 7  |
| 10 | 1 | 2 | 2 | 3 | 2 | 4 | 4 | 6 | 24 | 22 |
| 11 | 5 | 3 | 2 | 2 | 3 | 2 | 2 | 1 | 20 | 14 |
| 12 | 1 | 3 | 4 | 5 | 3 | 3 | 2 | 3 | 24 | 18 |
| 13 | 2 | 3 | 4 | 3 | 3 | 1 | 2 | 2 | 20 | 12 |
| 14 | 1 | 3 | 2 | 3 | 2 | 2 | 1 | 2 | 16 | 8  |
| 15 | 2 | 3 | 2 | 2 | 2 | 1 | 1 | 1 | 14 | 7  |
| 16 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 0 | 9  | 4  |
| 17 | 0 | 2 | 2 | 2 | 2 | 2 | 1 | 0 | 11 | 5  |
| 18 | 2 | 2 | 1 | 0 | 2 | 1 | 0 | 2 | 10 | 4  |
| 19 | 0 | 2 | 2 | 2 | 1 | 1 | 2 | 2 | 12 | 5  |
| 20 | 1 | 1 | 2 | 1 | 1 | 1 | 0 | 0 | 7  | 3  |
| 21 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 3  | 1  |
| 22 | 0 | 1 | 2 | 1 | 1 | 2 | 2 | 2 | 11 | 5  |
| 23 | 2 | 2 | 2 | 5 | 5 | 3 | 5 | 3 | 27 | 24 |
| 24 | 4 | 5 | 5 | 3 | 4 | 4 | 3 | 2 | 30 | 27 |
| 25 | 2 | 2 | 5 | 4 | 3 | 3 | 2 | 3 | 24 | 18 |
| 26 | 2 | 3 | 2 | 2 | 1 | 2 | 1 | 2 | 15 | 7  |
| 27 | 1 | 2 | 3 | 2 | 2 | 1 | 1 | 0 | 12 | 6  |
| 28 | 1 | 2 | 2 | 2 | 2 | 2 | 0 | 1 | 12 | 5  |
| 29 | 2 | 3 | 3 | 4 | 4 | 3 | 2 | 3 | 24 | 16 |
| 30 | 2 | 2 | 3 | 1 | 2 | 3 | 3 | 2 | 18 | 10 |

Sum 356  
Mean 11.9

# MAGNETIC STORMS

JUNE 1993

BGMO

| Time of Magnetic |    |    |     |    | Sudden Com. |      |     | Deg. | Maximum Acti. |     |      |       | Maximum |     |     |
|------------------|----|----|-----|----|-------------|------|-----|------|---------------|-----|------|-------|---------|-----|-----|
| Beginning Ending |    |    |     |    | Amplitude   |      |     | of   | on K-scale    |     |      |       | Range   |     |     |
| Day              | h  | m  | Day | h  | Type        | D'   | HnT | ZnT  | Acti.         | Day | Int. | Index | D'      | HnT | ZnT |
| 03               | 07 |    | 05  | 21 | GC          |      |     |      | ms            | 04  | 4    | 6     | 14.8    | 135 | 54  |
| 10               | 17 | 28 | 11  | 12 | SC          | 0.5  | 21  | 2    | ms            | 10  | 8    | 6     | 13.2    | 105 | 29  |
| 23               | 09 | 58 | 24  | 24 | SC          | -0.1 | 10  | 1    | m             | 24  | 3    | 5     | 11.0    | 108 | 40  |

## Late Data for May 1993

Quietest Day : 21, 22, 23, 24, 25

Most disturbed Day : 8, 9, 10, 17, 28