

# **Life Period of Cyclonic Disturbances over the North Indian Ocean during recent years**

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Regional Specialised Meteorological Centre (RSMC), New Delhi, has prepared life period of cyclonic disturbances for different seasons and year as a whole over the Bay of Bengal(BOB), Arabian Sea(AS) and North Indian Ocean (NIO) from 1990 to the present. Also the duration of different stages of cyclonic disturbances, viz., depression (D) with maximum sustained surface wind speed (MSW) of 17-27 knots, deep depression (DD) with MSW of 28-33 knots, cyclonic storm (CS) with MSW of 34-47 knots, severe cyclonic storm (SCS) with MSW of 48-63 knots, very severe cyclonic storm (VSCS) with MSW of 64-119 knots and super cyclonic storm (SuCS) with MSW of 120 knots or more. The category of extremely severe cyclonic storm has been merged with the category of VSCS.

These are presented in Table 1 to Table 5 for cyclonic disturbances (Depression and above) and Table 5 to Table 8 for tropical cyclones (cyclonic storm and above). For details about the data and for referring this data for further research the following publication may kindly be referred.

S.V.J. Kumar, V.Vijay Kumar, S.S. Ashtikar and M. Mohapatra, 2016, Life Period of Cyclonic Disturbances over the North Indian Ocean during recent years, In Tropical cyclone activity over North Indian Ocean, Co-published by Springer and Capital Publishing Company, New Delhi, pp.169-184

**Table 1 . Duration (hrs) of cyclonic disturbances in different stages over the NIO from 1990-2015 (winter season)**

| Year | Bay of Bengal |    |    |     |      |      |       | Arabian Sea |    |    |     |      |      |       | NIO |    |    |     |      |      |       |    |
|------|---------------|----|----|-----|------|------|-------|-------------|----|----|-----|------|------|-------|-----|----|----|-----|------|------|-------|----|
|      | D             | DD | CS | SCS | VSCS | SuCS | Total | D           | DD | CS | SCS | VSCS | SuCS | Total | D   | DD | CS | SCS | VSCS | SuCS | Total |    |
| 1990 | 0             | 0  | 0  | 0   | 0    | 0    | 0     | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 0   | 0  | 0  | 0   | 0    | 0    | 0     | 0  |
| 1991 | 0             | 0  | 0  | 0   | 0    | 0    | 0     | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 0   | 0  | 0  | 0   | 0    | 0    | 0     | 0  |
| 1992 | 0             | 0  | 0  | 0   | 0    | 0    | 0     | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 0   | 0  | 0  | 0   | 0    | 0    | 0     | 0  |
| 1993 | 0             | 0  | 0  | 0   | 0    | 0    | 0     | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 0   | 0  | 0  | 0   | 0    | 0    | 0     | 0  |
| 1994 | 0             | 0  | 0  | 0   | 0    | 0    | 0     | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 0   | 0  | 0  | 0   | 0    | 0    | 0     | 0  |
| 1995 | 0             | 0  | 0  | 0   | 0    | 0    | 0     | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 0   | 0  | 0  | 0   | 0    | 0    | 0     | 0  |
| 1996 | 0             | 0  | 0  | 0   | 0    | 0    | 0     | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 0   | 0  | 0  | 0   | 0    | 0    | 0     | 0  |
| 1997 | 0             | 0  | 0  | 0   | 0    | 0    | 0     | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 0   | 0  | 0  | 0   | 0    | 0    | 0     | 0  |
| 1998 | 0             | 0  | 0  | 0   | 0    | 0    | 0     | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 0   | 0  | 0  | 0   | 0    | 0    | 0     | 0  |
| 1999 | 33            | 15 | 9  | 0   | 0    | 0    | 57    | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 33  | 15 | 9  | 0   | 0    | 0    | 0     | 57 |
| 2000 | 0             | 0  | 0  | 0   | 0    | 0    | 0     | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 0   | 0  | 0  | 0   | 0    | 0    | 0     | 0  |
| 2001 | 0             | 0  | 0  | 0   | 0    | 0    | 0     | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 0   | 0  | 0  | 0   | 0    | 0    | 0     | 0  |
| 2002 | 0             | 0  | 0  | 0   | 0    | 0    | 0     | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 0   | 0  | 0  | 0   | 0    | 0    | 0     | 0  |
| 2003 | 0             | 0  | 0  | 0   | 0    | 0    | 0     | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 0   | 0  | 0  | 0   | 0    | 0    | 0     | 0  |
| 2004 | 0             | 0  | 0  | 0   | 0    | 0    | 0     | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 0   | 0  | 0  | 0   | 0    | 0    | 0     | 0  |
| 2005 | 18            | 33 | 45 | 0   | 0    | 0    | 96    | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 18  | 33 | 45 | 0   | 0    | 0    | 0     | 96 |
| 2006 | 0             | 0  | 0  | 0   | 0    | 0    | 0     | 27          | 9  | 0  | 0   | 0    | 0    | 36    | 27  | 9  | 0  | 0   | 0    | 0    | 0     | 36 |
| 2007 | 0             | 0  | 0  | 0   | 0    | 0    | 0     | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 0   | 0  | 0  | 0   | 0    | 0    | 0     | 0  |
| 2008 | 0             | 0  | 0  | 0   | 0    | 0    | 0     | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 0   | 0  | 0  | 0   | 0    | 0    | 0     | 0  |
| 2009 | 0             | 0  | 0  | 0   | 0    | 0    | 0     | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 0   | 0  | 0  | 0   | 0    | 0    | 0     | 0  |
| 2010 | 0             | 0  | 0  | 0   | 0    | 0    | 0     | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 0   | 0  | 0  | 0   | 0    | 0    | 0     | 0  |
| 2011 | 15            | 0  | 0  | 0   | 0    | 0    | 15    | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 15  | 0  | 0  | 0   | 0    | 0    | 0     | 15 |
| 2012 | 0             | 0  | 0  | 0   | 0    | 0    | 0     | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 0   | 0  | 0  | 0   | 0    | 0    | 0     | 0  |
| 2013 | 0             | 0  | 0  | 0   | 0    | 0    | 0     | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 0   | 0  | 0  | 0   | 0    | 0    | 0     | 0  |
| 2014 | 0             | 0  | 0  | 0   | 0    | 0    | 0     | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 0   | 0  | 0  | 0   | 0    | 0    | 0     | 0  |
| 2015 | 72            | 0  | 0  | 0   | 0    | 0    | 72    | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 72  | 0  | 0  | 0   | 0    | 0    | 0     | 72 |

**Table 2 .Duration(hrs) of cyclonic disturbances in different stages over the NIO from 1990-2015 in pre-monsoon**

| Year | Bay of Bengal |    |     |     |      |      |       | Arabian Sea |    |    |     |      |      |       | NIO |    |     |     |      |      |       |
|------|---------------|----|-----|-----|------|------|-------|-------------|----|----|-----|------|------|-------|-----|----|-----|-----|------|------|-------|
|      | D             | DD | CS  | SCS | VSCS | SuCS | Total | D           | DD | CS | SCS | VSCS | SuCS | Total | D   | DD | CS  | SCS | VSCS | SuCS | Total |
| 1990 | 18            | 12 | 18  | 12  | 72   | 18   | 150   | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 18  | 12 | 18  | 12  | 72   | 18   | 150   |
| 1991 | 30            | 24 | 48  | 24  | 42   | 24   | 192   | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 30  | 24 | 48  | 24  | 42   | 24   | 192   |
| 1992 | 30            | 24 | 30  | 0   | 0    | 0    | 84    | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 30  | 24 | 30  | 0   | 0    | 0    | 84    |
| 1993 | 0             | 0  | 0   | 0   | 0    | 0    | 0     | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 0   | 0  | 0   | 0   | 0    | 0    | 0     |
| 1994 | 75            | 9  | 24  | 12  | 41   | 0    | 161   | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 75  | 9  | 24  | 12  | 41   | 0    | 161   |
| 1995 | 90            | 69 | 0   | 0   | 0    | 0    | 159   | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 90  | 69 | 0   | 0   | 0    | 0    | 159   |
| 1996 | 15            | 9  | 0   | 0   | 0    | 0    | 24    | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 15  | 9  | 0   | 0   | 0    | 0    | 24    |
| 1997 | 12            | 15 | 30  | 18  | 39   | 0    | 114   | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 12  | 15 | 30  | 18  | 39   | 0    | 114   |
| 1998 | 18            | 12 | 21  | 21  | 0    | 0    | 72    | 24          | 0  | 0  | 0   | 0    | 0    | 24    | 42  | 12 | 21  | 21  | 0    | 0    | 96    |
| 1999 | 0             | 0  | 0   | 0   | 0    | 0    | 0     | 6           | 18 | 30 | 6   | 84   | 0    | 144   | 6   | 18 | 30  | 6   | 84   | 0    | 144   |
| 2000 | 39            | 12 | 21  | 0   | 0    | 0    | 72    | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 39  | 12 | 21  | 0   | 0    | 0    | 72    |
| 2001 | 0             | 0  | 0   | 0   | 0    | 0    | 0     | 18          | 12 | 45 | 30  | 78   | 0    | 183   | 18  | 12 | 45  | 30  | 78   | 0    | 183   |
| 2002 | 9             | 15 | 0   | 0   | 0    | 0    | 24    | 48          | 27 | 27 | 0   | 0    | 0    | 102   | 57  | 42 | 27  | 0   | 0    | 0    | 126   |
| 2003 | 9             | 78 | 75  | 36  | 36   | 0    | 234   | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 9   | 78 | 75  | 36  | 36   | 0    | 234   |
| 2004 | 9             | 9  | 27  | 9   | 12   | 0    | 66    | 6           | 9  | 81 | 33  | 0    | 0    | 129   | 15  | 18 | 108 | 42  | 12   | 0    | 195   |
| 2005 | 0             | 0  | 0   | 0   | 0    | 0    | 0     | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 0   | 0  | 0   | 0   | 0    | 0    | 0     |
| 2006 | 6             | 3  | 45  | 18  | 45   | 0    | 117   | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 6   | 3  | 45  | 18  | 45   | 0    | 117   |
| 2007 | 57            | 6  | 21  | 0   | 0    | 0    | 84    | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 57  | 6  | 21  | 0   | 0    | 0    | 84    |
| 2008 | 9             | 12 | 15  | 27  | 90   | 0    | 153   | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 9   | 12 | 15  | 27  | 90   | 0    | 153   |
| 2009 | 51            | 21 | 75  | 9   | 0    | 0    | 156   | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 51  | 21 | 75  | 9   | 0    | 0    | 156   |
| 2010 | 12            | 15 | 45  | 30  | 0    | 0    | 102   | 66          | 66 | 57 | 27  | 45   | 0    | 261   | 78  | 81 | 102 | 57  | 45   | 0    | 363   |
| 2011 | 0             | 0  | 0   | 0   | 0    | 0    | 0     | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 0   | 0  | 0   | 0   | 0    | 0    | 0     |
| 2012 | 0             | 0  | 0   | 0   | 0    | 0    | 0     | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 0   | 0  | 0   | 0   | 0    | 0    | 0     |
| 2013 | 66            | 21 | 129 | 0   | 0    | 0    | 216   | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 66  | 21 | 129 | 0   | 0    | 0    | 216   |
| 2014 | 48            | 0  | 0   | 0   | 0    | 0    | 48    | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 48  | 0  | 0   | 0   | 0    | 0    | 48    |
| 2015 | 0             | 0  | 0   | 0   | 0    | 0    | 0     | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 0   | 0  | 0   | 0   | 0    | 0    | 0     |

**Table 3 . Duration (hrs) of cyclonic disturbances in different stages over the NIO from 1990-2015 in Monsoon**

| Year | Bay of Bengal |     |    |     |      |      |       | Arabian Sea |    |    |     |      |      |       | NIO |     |     |     |      |      |       |
|------|---------------|-----|----|-----|------|------|-------|-------------|----|----|-----|------|------|-------|-----|-----|-----|-----|------|------|-------|
|      | D             | DD  | CS | SCS | VSCS | SuCS | Total | D           | DD | CS | SCS | VSCS | SuCS | Total | D   | DD  | CS  | SCS | VSCS | SuCS | Total |
| 1990 | 264           | 6   | 0  | 0   | 0    | 0    | 270   | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 264 | 6   | 0   | 0   | 0    | 0    | 270   |
| 1991 | 216           | 0   | 0  | 0   | 0    | 0    | 216   | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 216 | 0   | 0   | 0   | 0    | 0    | 216   |
| 1992 | 84            | 102 | 0  | 0   | 0    | 0    | 186   | 30          | 48 | 24 | 0   | 0    | 0    | 102   | 114 | 150 | 24  | 0   | 0    | 0    | 288   |
| 1993 | 33            | 24  | 0  | 0   | 0    | 0    | 57    | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 33  | 24  | 0   | 0   | 0    | 0    | 57    |
| 1994 | 63            | 15  | 0  | 0   | 0    | 0    | 78    | 21          | 21 | 42 | 6   | 0    | 0    | 90    | 84  | 36  | 42  | 6   | 0    | 0    | 168   |
| 1995 | 90            | 0   | 0  | 0   | 0    | 0    | 90    | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 90  | 0   | 0   | 0   | 0    | 0    | 90    |
| 1996 | 15            | 21  | 60 | 0   | 0    | 0    | 96    | 21          | 21 | 24 | 9   | 0    | 0    | 75    | 36  | 42  | 84  | 9   | 0    | 0    | 171   |
| 1997 | 174           | 387 | 63 | 6   | 0    | 0    | 630   | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 174 | 387 | 63  | 6   | 0    | 0    | 630   |
| 1998 | 12            | 24  | 0  | 0   | 0    | 0    | 36    | 30          | 30 | 27 | 36  | 48   | 0    | 171   | 42  | 54  | 27  | 36  | 48   | 0    | 207   |
| 1999 | 108           | 36  | 0  | 0   | 0    | 0    | 144   | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 108 | 36  | 0   | 0   | 0    | 0    | 144   |
| 2000 | 21            | 0   | 0  | 0   | 0    | 0    | 21    | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 21  | 0   | 0   | 0   | 0    | 0    | 21    |
| 2001 | 33            | 0   | 0  | 0   | 0    | 0    | 33    | 12          | 27 | 48 | 0   | 0    | 0    | 87    | 45  | 27  | 48  | 0   | 0    | 0    | 120   |
| 2002 | 0             | 0   | 0  | 0   | 0    | 0    | 0     | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 0   | 0   | 0   | 0   | 0    | 0    | 0     |
| 2003 | 57            | 39  | 0  | 0   | 0    | 0    | 96    | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 57  | 39  | 0   | 0   | 0    | 0    | 96    |
| 2004 | 24            | 54  | 0  | 0   | 0    | 0    | 78    | 36          | 81 | 27 | 15  | 0    | 0    | 159   | 60  | 135 | 27  | 15  | 0    | 0    | 237   |
| 2005 | 207           | 72  | 33 | 0   | 0    | 0    | 312   | 120         | 0  | 0  | 0   | 0    | 0    | 120   | 327 | 72  | 33  | 0   | 0    | 0    | 432   |
| 2006 | 297           | 102 | 0  | 0   | 0    | 0    | 399   | 9           | 24 | 21 | 33  | 0    | 0    | 87    | 306 | 126 | 21  | 33  | 0    | 0    | 486   |
| 2007 | 234           | 159 | 0  | 0   | 0    | 0    | 393   | 18          | 15 | 25 | 21  | 69   | 6    | 154   | 252 | 174 | 25  | 21  | 69   | 6    | 547   |
| 2008 | 96            | 54  | 0  | 0   | 0    | 0    | 150   | 48          | 0  | 0  | 0   | 0    | 0    | 48    | 144 | 54  | 0   | 0   | 0    | 0    | 198   |
| 2009 | 18            | 72  | 0  | 0   | 0    | 0    | 90    | 42          | 0  | 0  | 0   | 0    | 0    | 42    | 60  | 72  | 0   | 0   | 0    | 0    | 132   |
| 2010 | 0             | 0   | 0  | 0   | 0    | 0    | 0     | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 0   | 0   | 0   | 0   | 0    | 0    | 0     |
| 2011 | 99            | 96  | 0  | 0   | 0    | 0    | 195   | 24          | 0  | 0  | 0   | 0    | 0    | 24    | 123 | 96  | 0   | 0   | 0    | 0    | 219   |
| 2012 | 0             | 0   | 0  | 0   | 0    | 0    | 0     | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 0   | 0   | 0   | 0   | 0    | 0    | 0     |
| 2013 | 48            | 0   | 0  | 0   | 0    | 0    | 48    | 0           | 0  | 0  | 0   | 0    | 0    | 0     | 48  | 0   | 0   | 0   | 0    | 0    | 48    |
| 2014 | 46            | 39  | 0  | 0   | 0    | 0    | 85    | 24          | 9  | 57 | 0   | 0    | 0    | 90    | 70  | 48  | 57  | 0   | 0    | 0    | 175   |
| 2015 | 165           | 33  | 27 | 0   | 0    | 0    | 225   | 48          | 42 | 87 | 0   | 0    | 0    | 177   | 213 | 75  | 114 | 0   | 0    | 0    | 402   |

**Table 4 .Duration (hrs) of cyclonic disturbances in different stages over the NIO from 1990-2015 in Post-monsoon**

| Year | Bay of Bengal |     |     |     |      |      |       | Arabian Sea |     |    |     |      |      |       | NIO |     |     |     |      |      |       |
|------|---------------|-----|-----|-----|------|------|-------|-------------|-----|----|-----|------|------|-------|-----|-----|-----|-----|------|------|-------|
|      | D             | DD  | CS  | SCS | VSCS | SuCS | Total | D           | DD  | CS | SCS | VSCS | SuCS | Total | D   | DD  | CS  | SCS | VSCS | SuCS | Total |
| 1990 | 138           | 72  | 36  | 18  | 0    | 0    | 264   | 36          | 12  | 0  | 0   | 0    | 0    | 48    | 174 | 84  | 36  | 18  | 0    | 0    | 312   |
| 1991 | 132           | 12  | 42  | 0   | 0    | 0    | 186   | 0           | 0   | 0  | 0   | 0    | 0    | 0     | 132 | 12  | 42  | 0   | 0    | 0    | 186   |
| 1992 | 102           | 180 | 90  | 90  | 6    | 0    | 468   | 96          | 60  | 54 | 0   | 0    | 0    | 210   | 198 | 240 | 144 | 90  | 6    | 0    | 678   |
| 1993 | 30            | 42  | 15  | 9   | 24   | 0    | 120   | 54          | 24  | 39 | 9   | 12   | 0    | 138   | 84  | 66  | 54  | 18  | 36   | 0    | 258   |
| 1994 | 81            | 30  | 15  | 18  | 0    | 0    | 144   | 24          | 9   | 69 | 9   | 9    | 0    | 120   | 105 | 39  | 84  | 27  | 9    | 0    | 264   |
| 1995 | 27            | 24  | 45  | 30  | 51   | 0    | 177   | 39          | 27  | 60 | 0   | 0    | 0    | 126   | 66  | 51  | 105 | 30  | 51   | 0    | 303   |
| 1996 | 117           | 84  | 55  | 65  | 45   | 0    | 366   | 63          | 24  | 9  | 33  | 0    | 0    | 129   | 180 | 108 | 64  | 98  | 45   | 0    | 495   |
| 1997 | 3             | 6   | 120 | 0   | 0    | 0    | 129   | 12          | 54  | 0  | 0   | 0    | 0    | 66    | 15  | 60  | 120 | 0   | 0    | 0    | 195   |
| 1998 | 66            | 108 | 45  | 30  | 24   | 0    | 273   | 126         | 93  | 45 | 42  | 0    | 0    | 306   | 192 | 201 | 90  | 72  | 24   | 0    | 579   |
| 1999 | 85            | 27  | 57  | 36  | 57   | 21   | 283   | 0           | 0   | 0  | 0   | 0    | 0    | 0     | 85  | 27  | 57  | 36  | 57   | 21   | 283   |
| 2000 | 129           | 123 | 84  | 30  | 63   | 0    | 429   | 0           | 0   | 0  | 0   | 0    | 0    | 0     | 129 | 123 | 84  | 30  | 63   | 0    | 429   |
| 2001 | 42            | 9   | 24  | 0   | 0    | 0    | 75    | 9           | 12  | 18 | 0   | 0    | 0    | 39    | 51  | 21  | 42  | 0   | 0    | 0    | 114   |
| 2002 | 147           | 60  | 126 | 3   | 0    | 0    | 336   | 0           | 0   | 0  | 0   | 0    | 0    | 0     | 147 | 60  | 126 | 3   | 0    | 0    | 336   |
| 2003 | 144           | 42  | 30  | 33  | 0    | 0    | 249   | 18          | 15  | 18 | 30  | 0    | 0    | 81    | 162 | 57  | 48  | 63  | 0    | 0    | 330   |
| 2004 | 51            | 0   | 0   | 0   | 0    | 0    | 51    | 108         | 48  | 33 | 12  | 0    | 0    | 201   | 159 | 48  | 33  | 12  | 0    | 0    | 252   |
| 2005 | 204           | 162 | 138 | 0   | 0    | 0    | 504   | 0           | 0   | 0  | 0   | 0    | 0    | 0     | 204 | 162 | 138 | 0   | 0    | 0    | 504   |
| 2006 | 12            | 6   | 18  | 0   | 0    | 0    | 36    | 0           | 0   | 0  | 0   | 0    | 0    | 0     | 12  | 6   | 18  | 0   | 0    | 0    | 36    |
| 2007 | 42            | 9   | 15  | 6   | 75   | 0    | 147   | 18          | 120 | 0  | 0   | 0    | 0    | 138   | 60  | 129 | 15  | 6   | 75   | 0    | 285   |
| 2008 | 93            | 114 | 63  | 0   | 0    | 0    | 270   | 66          | 24  | 0  | 0   | 0    | 0    | 90    | 159 | 138 | 63  | 0   | 0    | 0    | 360   |
| 2009 | 33            | 48  | 33  | 0   | 0    | 0    | 114   | 24          | 21  | 18 | 0   | 0    | 0    | 63    | 57  | 69  | 51  | 0   | 0    | 0    | 177   |
| 2010 | 168           | 42  | 45  | 39  | 18   | 0    | 312   | 0           | 0   | 0  | 0   | 0    | 0    | 0     | 168 | 42  | 45  | 39  | 18   | 0    | 312   |
| 2011 | 33            | 42  | 39  | 6   | 39   | 0    | 159   | 225         | 93  | 15 | 0   | 0    | 0    | 333   | 258 | 135 | 54  | 6   | 39   | 0    | 492   |
| 2012 | 72            | 78  | 39  | 0   | 0    | 0    | 189   | 51          | 63  | 30 | 0   | 0    | 0    | 144   | 123 | 141 | 69  | 0   | 0    | 0    | 333   |
| 2013 | 204           | 75  | 96  | 111 | 147  | 0    | 633   | 0           | 78  | 0  | 0   | 0    | 0    | 78    | 204 | 153 | 96  | 111 | 147  | 0    | 711   |
| 2014 | 87            | 48  | 27  | 33  | 21   | 48   | 264   | 30          | 6   | 27 | 21  | 36   | 27   | 147   | 117 | 54  | 54  | 54  | 57   | 75   | 411   |
| 2015 | 18            | 33  | 0   | 0   | 0    | 0    | 51    | 69          | 57  | 66 | 27  | 54   | 105  | 378   | 87  | 90  | 66  | 27  | 54   | 105  | 429   |

**Table 5 .Duration (hrs) of cyclonic disturbances in different stages over the NIO from 1990-2015 in years as a whole**

| Year | Bay of Bengal |     |     |     |      |      |       | Arabian Sea |     |     |     |      |      |       | NIO |     |     |     |      |      |       |
|------|---------------|-----|-----|-----|------|------|-------|-------------|-----|-----|-----|------|------|-------|-----|-----|-----|-----|------|------|-------|
|      | D             | DD  | CS  | SCS | VSCS | SuCS | Total | D           | DD  | CS  | SCS | VSCS | SuCS | Total | D   | DD  | CS  | SCS | VSCS | SuCS | Total |
| 1990 | 420           | 90  | 54  | 30  | 72   | 18   | 684   | 36          | 12  | 0   | 0   | 0    | 0    | 48    | 456 | 102 | 54  | 30  | 72   | 18   | 732   |
| 1991 | 378           | 36  | 90  | 24  | 42   | 24   | 594   | 0           | 0   | 0   | 0   | 0    | 0    | 0     | 378 | 36  | 90  | 24  | 42   | 24   | 594   |
| 1992 | 216           | 306 | 120 | 90  | 6    | 0    | 738   | 126         | 108 | 78  | 0   | 0    | 0    | 312   | 342 | 414 | 198 | 90  | 6    | 0    | 1050  |
| 1993 | 63            | 66  | 15  | 9   | 24   | 0    | 177   | 54          | 24  | 39  | 9   | 12   | 0    | 138   | 117 | 90  | 54  | 18  | 36   | 0    | 315   |
| 1994 | 219           | 54  | 39  | 30  | 41   | 0    | 383   | 45          | 30  | 111 | 15  | 9    | 0    | 210   | 264 | 84  | 150 | 45  | 50   | 0    | 593   |
| 1995 | 207           | 93  | 45  | 30  | 51   | 0    | 426   | 39          | 27  | 60  | 0   | 0    | 0    | 126   | 246 | 120 | 105 | 30  | 51   | 0    | 552   |
| 1996 | 147           | 114 | 115 | 65  | 45   | 0    | 486   | 84          | 45  | 33  | 42  | 0    | 0    | 204   | 231 | 159 | 148 | 107 | 45   | 0    | 690   |
| 1997 | 189           | 408 | 213 | 24  | 39   | 0    | 873   | 12          | 54  | 0   | 0   | 0    | 0    | 66    | 201 | 462 | 213 | 24  | 39   | 0    | 939   |
| 1998 | 96            | 144 | 66  | 51  | 24   | 0    | 381   | 180         | 123 | 72  | 78  | 48   | 0    | 501   | 276 | 267 | 138 | 129 | 72   | 0    | 882   |
| 1999 | 226           | 78  | 66  | 36  | 57   | 21   | 484   | 6           | 18  | 30  | 6   | 84   | 0    | 144   | 232 | 96  | 96  | 42  | 141  | 21   | 628   |
| 2000 | 189           | 135 | 105 | 30  | 63   | 0    | 522   | 0           | 0   | 0   | 0   | 0    | 0    | 0     | 189 | 135 | 105 | 30  | 63   | 0    | 522   |
| 2001 | 75            | 9   | 24  | 0   | 0    | 0    | 108   | 39          | 51  | 111 | 30  | 78   | 0    | 309   | 114 | 60  | 135 | 30  | 78   | 0    | 417   |
| 2002 | 156           | 75  | 126 | 3   | 0    | 0    | 360   | 48          | 27  | 27  | 0   | 0    | 0    | 102   | 204 | 102 | 153 | 3   | 0    | 0    | 462   |
| 2003 | 210           | 159 | 105 | 69  | 36   | 0    | 579   | 18          | 15  | 18  | 30  | 0    | 0    | 81    | 228 | 174 | 123 | 99  | 36   | 0    | 660   |
| 2004 | 84            | 63  | 27  | 9   | 12   | 0    | 195   | 150         | 138 | 141 | 60  | 0    | 0    | 489   | 234 | 201 | 168 | 69  | 12   | 0    | 684   |
| 2005 | 429           | 267 | 216 | 0   | 0    | 0    | 912   | 120         | 0   | 0   | 0   | 0    | 0    | 120   | 549 | 267 | 216 | 0   | 0    | 0    | 1032  |
| 2006 | 315           | 111 | 63  | 18  | 45   | 0    | 552   | 36          | 33  | 21  | 33  | 0    | 0    | 123   | 351 | 144 | 84  | 51  | 45   | 0    | 675   |
| 2007 | 333           | 174 | 36  | 6   | 75   | 0    | 624   | 36          | 135 | 25  | 21  | 69   | 6    | 292   | 369 | 309 | 61  | 27  | 144  | 6    | 916   |
| 2008 | 198           | 180 | 78  | 27  | 90   | 0    | 573   | 114         | 24  | 0   | 0   | 0    | 0    | 138   | 312 | 204 | 78  | 27  | 90   | 0    | 711   |
| 2009 | 102           | 141 | 108 | 9   | 0    | 0    | 360   | 66          | 21  | 18  | 0   | 0    | 0    | 105   | 168 | 162 | 126 | 9   | 0    | 0    | 465   |
| 2010 | 180           | 57  | 90  | 69  | 18   | 0    | 414   | 66          | 66  | 57  | 27  | 45   | 0    | 261   | 246 | 123 | 147 | 96  | 63   | 0    | 675   |
| 2011 | 147           | 138 | 39  | 6   | 39   | 0    | 369   | 249         | 93  | 15  | 0   | 0    | 0    | 357   | 396 | 231 | 54  | 6   | 39   | 0    | 726   |
| 2012 | 72            | 78  | 39  | 0   | 0    | 0    | 189   | 51          | 63  | 30  | 0   | 0    | 0    | 144   | 123 | 141 | 69  | 0   | 0    | 0    | 333   |
| 2013 | 318           | 96  | 225 | 111 | 147  | 0    | 897   | 0           | 78  | 0   | 0   | 0    | 0    | 78    | 318 | 174 | 225 | 111 | 147  | 0    | 975   |
| 2014 | 181           | 87  | 27  | 33  | 21   | 48   | 397   | 54          | 15  | 84  | 21  | 36   | 27   | 237   | 235 | 102 | 111 | 54  | 57   | 75   | 634   |
| 2015 | 255           | 66  | 27  | 0   | 0    | 0    | 348   | 117         | 99  | 153 | 27  | 54   | 105  | 555   | 372 | 165 | 180 | 27  | 54   | 105  | 903   |