

ERA report series



4 List of observations assimilated in ERA-40 and ERA-Interim (v1.0)

Series: ERA Report Series

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Abstract

The present report lists all the observations assimilated in ERA-40 and ERA-Interim, with the start/end dates, including the dates of major breaks in data coverage when relevant. The report also includes the dates of changes in the sea-surface boundary conditions.

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1 Introduction

1.1 ECMWF Re-Analyses

Altogether, the ECMWF Re-Analyses ERA-40 (Uppala et al., 2005) and ERA-Interim (Uppala et al., 2008) cover a timespan of more than a half-century. ERA-40 covers the years 1957-2002, and ERA-Interim goes back to 1989, continuing in near-real-time for climate monitoring.

The ERA-Interim re-analysis is not a replacement of ERA-40. Yet, it includes several improvements, such as a refined data assimilation scheme (four-dimensional variational assimilation, 4D-Var, with VarBC) and a refined numerical weather prediction model. Also, it is the first global re-analysis to assimilate Global Positioning System radio occultation measurements.

This report provides a complete list of the observations assimilated into the ERA-40 and the ERA-Interim analyses.

One application of reanalyses is to serve as an external source of information to "stitch" together various observational records which do not overlap (or for which there is no matching time/space intersection). Another use is to assist in reprocessing of satellite records by providing an estimate of the state of the atmosphere. It is hence of utmost importance for such users to know exactly what satellite observations went into the reanalysis.

1.2 Information contained in this memo

For each entry in the list of observations, the following information is included:

- the type of platform that collected the measurement (aircraft, balloon-borne, (ocean) drifter, station, profiler, satellite);
- the type of report, as received or found in the ECMWF archive, following the WMO convention (or the practice) that was in place at the time the observation was exchanged. For satellite atmospheric motion vectors, the naming is very much unclear in the early satellite record: when we could not interpret beyond reasonable doubt the satellite identifier, we have left it as found; when we could not determine with certainty the satellite number in the satellite series, we have added question marks ("???" – this occurred in six instances). However, note that at least the satellite series is always identified. Overall, this illustrates the importance of a consistent and documented reprocessing approach when dealing with old satellite observations;
- the type of observable, according to the following nomenclature: T: temperature; PS: surface pressure; U: wind; U10: surface wind; Q: humidity; Z: geopotential height. For satellite observations, the variables as assimilated are explicitly decoded to avoid confusion between the various levels of satellite data;
- the start and end month of assimilation, followed by the list of "major" gaps (a major gap being defined here as lasting more than 30 days).

The additional information may also be found:

- for satellite observations: the instrument that collected the raw measurements;
- for atmospheric motion vector observations: the type of BUFR message and the type of retrieval, as interpreted by the assimilation using the information found in the data records.

2 Observations assimilated in ERA-40

2.1 Observations assimilated in ERA-40 3D-Var upper-air analyses

2.1.1 Aircraft observations

Aircraft ACARS_Aircraft_Report ; T ; Oct 1957-Dec 2001 ; Major gap(s): 180 days after 24 Oct 1957, 55 days after 14 May 1958, 40 days after 29 Jul 1958, 74 days after 25 Sep 1958, Dec 1958-Jan 1960, 35 days after 28 May 1960, 34 days after 27 Nov 1960, 36 days after 27 May 1961, 132 days after 29 Dec 1961

Aircraft ACARS_Aircraft_Report ; U ; Sep 1957-Dec 2001 ; Major gap(s): Jan 1959-Jan 1960, 130 days after 31 Dec 1961

Aircraft AIREP_Aircraft_Report ; T/U ; Feb 1975-Dec 2001 ; Major gap(s): Jan 1977-Aug 1978

Aircraft AMDAR_Aircraft_Report ; T/U ; Dec 1978-Dec 2001 ; Major gap(s): Dec 1979-Jan 1992

2.1.2 Ocean drifter observations

Ocean drifter BATHY_Buoy_Report ; PS ; Dec 1978-Nov 1979

Ocean drifter BATHY_Buoy_Report ; U ; Dec 1978-Feb 2001 ; Major gap(s): 30 days after 27 Jul 1980, 61 days after 30 Aug 1980, 31 days after 19 Aug 1981, 55 days after 22 Dec 1999, 299 days after 22 Feb 2000, 36 days after 22 Dec 2000

Ocean drifter BATHY_Buoy_Report ; U10 ; Dec 1978-Dec 2001 ; Major gap(s): 44 days after 20 Dec 1981, 34 days after 20 Dec 1982, 71 days after 15 Apr 1983, 37 days after 25 Oct 1983, 43 days after 29 Feb 1984, 40 days after 26 Apr 1984, 39 days after 14 Jan 1985, 63 days after 19 Mar 1985, 35 days after 22 May 1985, 51 days after 15 Jan 1986, 76 days after 08 Mar 1986, 35 days after 01 Nov 1986, 53 days after 23 Nov 1995, 35 days after 06 Apr 2000, 100 days after 23 May 2000, 50 days after 24 Sep 2000, 89 days after 14 Nov 2000, 149 days after 20 Feb 2001, 56 days after 20 Jul 2001, 31 days after 15 Nov 2001

Ocean drifter DRIBU_Buoy_Report ; PS ; Oct 1972-Dec 2001

Ocean drifter DRIBU_Buoy_Report ; U ; Oct 1972-Dec 2001 ; Major gap(s): 112 days after 25 May 1973, 72 days after 06 Aug 1974, 39 days after 07 Sep 2001

Ocean drifter DRIBU_Buoy_Report ; U10 ; Oct 1972-Dec 2001 ; Major gap(s): 35 days after 18 May 1973, 40 days after 04 Apr 1975

Ocean drifter TESAC_Buoy_Report ; PS ; May 1979-Jul 1979 ; Major gap(s): 49 days after 05 May 1979

Ocean drifter TESAC_Buoy_Report ; U ; Jan 1981-Oct 1994 ; Major gap(s): 44 days after 22 Jan 1981, Mar 1981-Dec 1982, 37 days after 05 Feb 1983, 94 days after 15 Feb 1984, 43 days after 20 May 1984, 30 days after 13 Sep 1984, 54 days after 31 Oct 1984, 174 days after 19 Jan 1985, 116 days after 02 Aug 1985, 338 days after 10 Dec 1985, 96 days after 14 Nov 1986, 76 days after 22 Feb 1987, 37 days after 09 May 1987, 56 days after 10 Aug 1987, 34 days after 07 Dec 1987, 40 days after 01 Jun 1988, 45 days after 28 Oct 1988, 46 days after 10 May 1989, 39 days after 27 Jun 1989, 141 days after 03 Jun 1990, 35 days after 04 Dec 1990, 37 days after 05 Feb 1991, 44 days after 13 Apr 1991, 71 days after 29 May

1991, 31 days after 28 Aug 1991, 52 days after 25 Oct 1991, 142 days after 11 Jan 1992, 110 days after 03 Jun 1992, 134 days after 26 Sep 1992, 74 days after 07 Feb 1993, 31 days after 20 May 1993, 246 days after 29 Jun 1993, 196 days after 11 Mar 1994

Ocean drifter TESAC_Buoy_Report ; U10 ; May 1979-Aug 1994 ; Major gap(s): 46 days after 30 Jul 1979, 314 days after 28 Sep 1979, 270 days after 08 Aug 1980, May 1981-Nov 1982, 71 days after 17 Nov 1982, 45 days after 02 Sep 1983, 41 days after 26 Feb 1984, 31 days after 07 May 1984, 47 days after 02 Jan 1985, 149 days after 08 Apr 1985, 94 days after 06 Sep 1985, 140 days after 03 Jan 1986, 68 days after 06 Jun 1986, 37 days after 11 Sep 1986, 33 days after 23 Dec 1986, 30 days after 23 Mar 1987, 39 days after 28 Oct 1990, 34 days after 19 Dec 1990, 32 days after 04 Jun 1991, 32 days after 18 Jul 1991, 46 days after 21 Oct 1991, 68 days after 07 Jan 1992, 52 days after 18 Mar 1992, 42 days after 06 Jul 1992, 37 days after 18 Oct 1992, 46 days after 27 Nov 1992, 85 days after 22 Jan 1993, 39 days after 23 Apr 1993, 43 days after 12 Jul 1993, 37 days after 20 Sep 1993, 128 days after 27 Nov 1993, 32 days after 14 Jun 1994

2.1.3 *Pseudo-observations*

Australian pseudo-observations PAOB_Report ; PS ; Nov 1972-Dec 2001

2.1.4 *Wind profiler observations*

American_Wind_Profiler ; U ; Feb 1994-Dec 2001

2.1.5 *Balloon-borne observations*

Ascending balloon-borne PILOT_Land_Report ; U ; Sep 1957-Dec 2001

Ascending balloon-borne PILOT_SHIP_Report ; U ; Jul 1979-Sep 1999 ; Major gap(s): 31 days after 07 Mar 1990, 146 days after 28 Apr 1990, 30 days after 29 Oct 1990, 53 days after 05 Dec 1990, 46 days after 18 Feb 1991, 213 days after 06 May 1991, 65 days after 10 Dec 1991, Feb 1992-Jul 1999

Ascending balloon-borne Mobile_TEMP_Report ; Q/T ; Mar 1962-Dec 1994 ; Major gap(s): Mar 1962-Jul 1963, Jul 1963-Jan 1979, 69 days after 15 Aug 1979, 65 days after 27 Oct 1979, 50 days after 09 Jan 1991, 30 days after 02 May 1991, 55 days after 07 Oct 1991

Ascending balloon-borne Mobile_TEMP_Report ; U ; Mar 1962-Dec 1994 ; Major gap(s): Mar 1962-Jul 1963, Jul 1963-Oct 1964, 169 days after 14 Nov 1964, 233 days after 22 Jun 1965, 158 days after 11 Feb 1966, Jul 1966-Aug 1967, 89 days after 18 Aug 1967, Nov 1967-Jan 1979, 69 days after 15 Aug 1979, 65 days after 27 Oct 1979, 50 days after 09 Jan 1991, 30 days after 02 May 1991, 55 days after 07 Oct 1991

Ascending balloon-borne Mobile_TEMP_Report ; U10 ; Jan 1979-Dec 1994 ; Major gap(s): 69 days after 15 Aug 1979, 65 days after 27 Oct 1979, 38 days after 25 Nov 1980, 50 days after 09 Jan 1991, 30 days after 01 May 1991, 55 days after 06 Oct 1991

Ascending balloon-borne TEMP_Land_Report ; Q/T/U ; Sep 1957-Dec 2001

Ascending balloon-borne TEMP_SHIP_Report ; Q/T/U ; Mar 1962-Dec 2001 ; Major gap(s): 36 days after 02 Apr 1962

2.1.6 Dropsonde observations

Decending TEMP_Dropsonde_Report ; T ; Sep 1957-Nov 2001 ; Major gap(s): 50 days after 28 Apr 1960, Dec 1961-Feb 1973, 39 days after 05 Dec 1974, 68 days after 26 Feb 1979, 160 days after 25 Jul 1979, 79 days after 20 May 1987, 48 days after 09 Dec 1987, 51 days after 09 Jan 1991, 49 days after 13 Mar 1991, 30 days after 02 May 1991, 30 days after 03 Sep 1991, 59 days after 05 Oct 1991, 34 days after 23 Feb 1992, 35 days after 30 Mar 1992, 77 days after 07 May 1992, 30 days after 30 Aug 1992, 40 days after 28 Oct 1992, 81 days after 22 Jan 1995, 50 days after 13 Apr 1995, 42 days after 13 Jan 1996, 56 days after 25 Mar 1996, 42 days after 18 Jun 1996, 76 days after 29 Oct 1998, 89 days after 26 Feb 1999, 36 days after 10 Jun 1999, 34 days after 03 Dec 1999, 115 days after 14 Mar 2000, 32 days after 07 Jul 2000, 63 days after 10 Nov 2000, 101 days after 05 Mar 2001

Decending TEMP_Dropsonde_Report ; U ; Feb 1973-Nov 2001 ; Major gap(s): 39 days after 05 Dec 1974, 68 days after 26 Feb 1979, 161 days after 25 Jul 1979, 79 days after 20 May 1987, 48 days after 09 Dec 1987, 51 days after 09 Jan 1991, 49 days after 13 Mar 1991, 30 days after 02 May 1991, 59 days after 05 Oct 1991, 34 days after 23 Feb 1992, 35 days after 30 Mar 1992, 86 days after 07 May 1992, 30 days after 30 Aug 1992, 40 days after 28 Oct 1992, 81 days after 22 Jan 1995, 50 days after 13 Apr 1995, 81 days after 19 Dec 1995, 56 days after 25 Mar 1996, 89 days after 22 May 1996, 73 days after 09 Oct 1997, 76 days after 29 Oct 1998, 89 days after 26 Feb 1999, 36 days after 10 Jun 1999, 34 days after 03 Dec 1999, 115 days after 14 Mar 2000, 32 days after 07 Jul 2000, 63 days after 10 Nov 2000, 101 days after 05 Mar 2001

2.1.7 Surface observations

Surface station SYNOP-SHIP_Report ; PS/U ; Sep 1957-Dec 2001

Surface station SYNOP-SHIP_Report ; U10 ; Nov 1966-Dec 2001 ; Major gap(s): 41 days after 26 Nov 1966, 59 days after 26 Jan 1967, 30 days after 16 Apr 1967, 57 days after 17 May 1967, 64 days after 25 Aug 1967, 33 days after 15 Nov 1967, 30 days after 09 Jan 1968, 40 days after 09 Feb 1968, 32 days after 13 Apr 1968, 39 days after 07 Jun 1968, 112 days after 16 Jul 1968, 54 days after 30 Nov 1968, 49 days after 24 Jan 1969, 87 days after 15 Mar 1969, 258 days after 10 Jun 1969, 88 days after 16 Mar 1970, 62 days after 13 Jun 1970, 50 days after 05 Nov 1970, 54 days after 26 Dec 1970, 65 days after 13 Apr 1971, 49 days after 17 Jun 1971, 90 days after 12 Aug 1971, 35 days after 20 Oct 1973, 64 days after 17 Mar 1974, 71 days after 21 May 1974, 69 days after 01 Dec 1979, 46 days after 07 Jul 1999, 31 days after 13 Sep 1999, 32 days after 17 Nov 1999, 30 days after 19 Dec 1999, 52 days after 19 Feb 2000, 54 days after 15 Nov 2000, 30 days after 27 Mar 2001

Surface station SYNOP-SHIP_Report ; Z ; Sep 1957-Dec 2001 ; Major gap(s): 30 days after 01 Aug 1962, 35 days after 14 Aug 1969, 39 days after 29 Jun 2000, 36 days after 23 Sep 2000

Surface station SYNOP_Automatic_SHIP_Report ; PS/U ; Jan 1982-Dec 2001

Surface station SYNOP_Automatic_SHIP_Report ; U10 ; Mar 1982-Dec 2001 ; Major gap(s): 144 days after 28 Mar 1982, 138 days after 19 Aug 1982, Jan 1983-Sep 1985, Sep 1985-Oct 1986, 33 days after 27 Oct 1986, 148 days after 02 Dec 1986, 169 days after 23 May 1987, 51 days after 24 Dec 1987, 40 days after 24 Mar 1988, 81 days after 04 May 1988, 53 days after 10 Oct 1988, 35 days after 02 Dec 1988, 140 days after 26 Mar 1989, 32 days after 30 Aug 1989, 31 days after 01 Oct 1989, 36 days after 02 Nov 1989, 39 days after 09 Dec 1989, 77 days after 21 Feb 1990

Surface station SYNOP_Automatic_SHIP_Report ; Z ; Feb 1982-Dec 2001 ; Major gap(s): 238 days after 14 Mar 1982, 32 days after 11 Jan 1983, 55 days after 12 Feb 1983, 37 days after 09 Apr 1983, 101 days after 16 May 1983, 45 days after 26 Aug 1983, 88 days after 10 Oct 1983, 39 days after 13 Feb 1984, 164 days after 25 Jun 1984, 31 days after 06 Dec 1984, 40 days after 05 Mar 1985, 70 days after 15 Apr 1985, 33 days after 27 Jun 1985, 144 days after 14 Sep 1985, 43 days after 19 Feb 1986, 63 days after 08 Apr 1986, 53 days after 11 Jun 1986, 47 days after 29 Aug 1986, 141 days after 16 Oct 1986, 37 days after 07 Mar 1987, 39 days after 13 Apr 1987, 53 days after 23 May 1987, 108 days after 16 Jul 1987, 38 days after 06 Nov 1987, 38 days after 15 Dec 1987, 170 days after 28 Mar 1988, 68 days after 21 Sep 1988, 32 days after 17 Mar 1989, 136 days after 22 Apr 1989, 65 days after 05 Sep 1989, 39 days after 21 Feb 1990, 63 days after 20 May 1990, 118 days after 26 Jul 1990, 30 days after 01 Dec 1990, 48 days after 31 Dec 1990, 32 days after 19 Feb 1991, 97 days after 28 Apr 1991, 104 days after 26 Aug 1991, 119 days after 02 Mar 1992, 96 days after 02 Jul 1992, 49 days after 18 Oct 1992, 271 days after 16 Mar 1993, 58 days after 13 Feb 1994, 74 days after 15 Apr 1994, 124 days after 29 Jun 1994, 51 days after 31 Oct 1994, 42 days after 19 Jan 1995, 68 days after 15 Mar 1995, 38 days after 22 May 1995, 111 days after 30 Jun 1995, 34 days after 09 Dec 1995, 222 days after 09 Mar 1996, 34 days after 06 Nov 1996, 53 days after 27 Jan 1997, 31 days after 01 Jun 1997, 114 days after 03 Jul 1997, 59 days after 27 Oct 1997, 30 days after 29 Mar 1998, 66 days after 29 Apr 1998, 117 days after 05 Jul 1998, 55 days after 03 Aug 1999, 65 days after 25 Apr 2000, 95 days after 25 Sep 2000, 63 days after 08 Feb 2001, 129 days after 02 Jun 2001

Surface station SYNOP_Land_Automatic_Report ; H2/PS/Z ; Dec 1978-Dec 2001 ; Major gap(s): Dec 1979-Jan 1982

Surface station SYNOP_Land_Manual_Report ; H2/PS/Z ; Sep 1957-Dec 2001

Surface station SYNOP_SHip-REDuced (SHRED)_Report ; PS/U ; Jan 1982-Dec 2001

Surface station SYNOP_SHip-REDuced (SHRED)_Report ; U10 ; Mar 1982-Dec 2001 ; Major gap(s): 297 days after 08 Mar 1982, 213 days after 30 Dec 1982, 38 days after 01 Aug 1983, 281 days after 08 Sep 1983, 57 days after 16 Jun 1984, Aug 1984-Jun 1987, 148 days after 12 Jun 1987, 77 days after 08 Nov 1987, 35 days after 11 Mar 1988, Apr 1988-Oct 1991, 98 days after 29 Oct 1991, 69 days after 05 Feb 1992, 134 days after 14 Apr 1992, 201 days after 27 Aug 1992, Mar 1993-Dec 1994, 74 days after 04 Feb 1995, 237 days after 19 Apr 1995, 223 days after 14 Dec 1995, 310 days after 24 Jul 1996, 257 days after 31 May 1997, 153 days after 14 Feb 1998, Jul 1998-Aug 1999, 81 days after 22 Sep 1999, 94 days after 05 Mar 2000, 36 days after 21 Sep 2000, 127 days after 22 Mar 2001, 67 days after 24 Sep 2001

Surface station SYNOP_SHip-REDuced (SHRED)_Report ; Z ; Jan 1982-Dec 2001 ; Major gap(s): 112 days after 09 Apr 1982, 85 days after 31 Jul 1982, 38 days after 25 Jan 1983, 44 days after 15 Jun 1983, 30 days after 16 Sep 1983, 53 days after 12 Mar 1984, 48 days after 08 May 1984, 45 days after 25 Jun 1984, 32 days after 05 Jan 1985, 70 days after 07 Feb 1985, 79 days after 30 Apr 1985, 64 days after 18 Jul 1985, 33 days after 29 Sep 1985, 75 days after 17 Feb 1986, 44 days after 27 May 1986, 86 days after 10 Jul 1986, 30 days after 08 Dec 1986, 41 days after 20 Feb 1987, 67 days after 12 Apr 1987, 104 days after 22 Jun 1987, 58 days after 01 Nov 1987, 48 days after 03 May 1988, 43 days after 21 Jun 1988, 42 days after 04 Aug 1988, 74 days after 27 Oct 1988, 97 days after 18 May 1989, 106 days after 23 Aug 1989, 34 days after 10 Dec 1989, 33 days after 18 Mar 1990, 109 days after 05 May 1990, 121 days after 22 Aug 1990, 32 days after 26 Dec 1990, 61 days after 19 Feb 1991, 151 days after 07 May 1991, 30 days after 06 Oct 1991, 32 days after 23 Jan 1992, 110 days after 18 May 1992, 35 days after 06 Sep 1992, 106 days after 31 May 1993, 37 days after 18 Jan 1994, 44 days after 28 Feb 1994, 30 days after 20 Apr 1994, 46 days after 21 May 1994, 33 days after 16 Aug 1994, 35 days after 15 Oct 1994, 66 days

after 11 Jan 1995, 39 days after 29 Apr 1995, 39 days after 08 Jun 1995, 100 days after 18 Jul 1995, 40 days after 05 Jan 1996, 51 days after 15 Feb 1996, 176 days after 08 May 1996, 30 days after 15 Feb 1997, 209 days after 18 Mar 1997, 33 days after 05 Dec 1997, 137 days after 14 Jan 1998, 168 days after 05 Jun 1998, 89 days after 14 Jan 1999, 116 days after 23 Apr 1999, 96 days after 17 Aug 1999, 63 days after 10 Jan 2000, 81 days after 27 Mar 2000, 111 days after 17 Jun 2000, 34 days after 06 Oct 2000, 161 days after 25 Nov 2000, 61 days after 06 May 2001, 34 days after 07 Jul 2001, 99 days after 27 Aug 2001

2.1.8 *Satellite observations*

Satellite ozone retrievals ; ADEOS-1 ; Oct 1996-Apr 1997

Satellite ozone retrievals ; NOAA-9 ; Mar 1985-Feb 1998 ; Major gap(s): Apr 1986-Apr 1987, Dec 1988-Jan 1995, 89 days after 01 Feb 1995, 31 days after 31 Dec 1997

Satellite ozone retrievals ; NOAA-11 ; Jan 1991-Mar 2001 ; Major gap(s): 31 days after 01 Mar 1991, Oct 1994-Feb 1998

Satellite ozone retrievals ; NOAA-16 ; Jan 2001-Dec 2001

Satellite ozone retrievals ; METEOR-3 ; Apr 1993-Dec 1994

Satellite ozone retrievals ; NIMBUS-7 ; Dec 1978-May 1993 ; Major gap(s): Jan 1989-Jan 1991

Satellite ozone retrievals ; EARTHPROBE ; Sep 1996-Dec 2001 ; Major gap(s): 153 days after 01 Jul 1997, 33 days after 01 Dec 1998

Satellite brightness temperature radiances NOAA-2 ; instrument: VTPR1 ; Jan 1973-Oct 1974 ; Major gap(s): 56 days after 20 Jun 1973, 49 days after 17 Oct 1973, 164 days after 18 Jan 1974

Satellite brightness temperature radiances NOAA-2 ; instrument: VTPR2 ; Jan 1973-Sep 1974 ; Major gap(s): 55 days after 26 Apr 1973, 62 days after 15 Aug 1973, 195 days after 18 Mar 1974

Satellite brightness temperature radiances NOAA-3 ; instrument: VTPR1 ; Jul 1974-Dec 1974 ; Major gap(s): 106 days after 01 Jul 1974

Satellite brightness temperature radiances NOAA-3 ; instrument: VTPR2 ; Mar 1974-Apr 1974

Satellite brightness temperature radiances NOAA-4 ; instrument: VTPR1 ; Jun 1975-Aug 1976 ; Major gap(s): Jun 1975-Aug 1976

Satellite brightness temperature radiances NOAA-4 ; instrument: VTPR2 ; Dec 1974-Sep 1976

Satellite brightness temperature radiances NOAA-5 ; instrument: VTPR1 ; Sep 1976-Nov 1978

Satellite brightness temperature radiances NOAA-5 ; instrument: VTPR2 ; Nov 1976-Sep 1978 ; Major gap(s): 196 days after 16 Nov 1976, 112 days after 01 Jun 1977, 159 days after 09 Oct 1977, 61 days after 18 Mar 1978, 32 days after 26 Jul 1978, 31 days after 27 Aug 1978

Satellite brightness temperature radiances TIROS-N ; instrument: HIRS ; Jan 1979-Mar 1980

Satellite brightness temperature radiances TIROS-N ; instrument: MSU ; Dec 1978-Jun 1979

Satellite brightness temperature radiances TIROS-N ; instrument: SSU ; Dec 1978-Feb 1981

- Satellite brightness temperature radiances** NOAA-6 ; instrument: HIRS ; Jul 1979-Apr 1983
- Satellite brightness temperature radiances** NOAA-6 ; instrument: MSU ; Aug 1979-Oct 1986 ; Major gap(s): Apr 1983-Dec 1985
- Satellite brightness temperature radiances** NOAA-6 ; instrument: SSU ; Jul 1979-Oct 1986 ; Major gap(s): Apr 1983-Dec 1985
- Satellite brightness temperature radiances** NOAA-7 ; instruments: HIRS/MSU/SSU ; Sep 1981-Feb 1985
- Satellite brightness temperature radiances** NOAA-8 ; instruments: HIRS/MSU/SSU ; May 1983-May 1984
- Satellite brightness temperature radiances** NOAA-9 ; instrument: HIRS ; Feb 1985-Nov 1988 ; Major gap(s): 30 days after 01 Sep 1985
- Satellite brightness temperature radiances** NOAA-9 ; instrument: MSU ; Jan 1985-Mar 1987
- Satellite brightness temperature radiances** NOAA-9 ; instrument: SSU ; Jan 1985-Nov 1988
- Satellite brightness temperature radiances** NOAA-10 ; instruments: HIRS/MSU ; Dec 1986-Sep 1991
- Satellite brightness temperature radiances** NOAA-11 ; instruments: HIRS/MSU/SSU ; Nov 1988-Sep 1998 ; Major gap(s): Jan 1995-Sep 1997
- Satellite brightness temperature radiances** NOAA-12 ; instrument: HIRS ; Sep 1991-May 1997 ; Major gap(s): 65 days after 25 Dec 1991
- Satellite brightness temperature radiances** NOAA-12 ; instrument: MSU ; Sep 1991-May 1997
- Satellite brightness temperature radiances** NOAA-14 ; instruments: HIRS/MSU ; May 1995-Dec 2001
- Satellite brightness temperature radiances** NOAA-14 ; instrument: SSU ; Jan 1995-Dec 2001 ; Major gap(s): 311 days after 04 Jul 1999
- Satellite brightness temperature radiances** NOAA-15 ; instrument: AMSU-A ; Sep 1998-Dec 2001
- Satellite brightness temperature radiances** NOAA-15 ; instrument: HIRS ; Sep 1998-Jun 2000
- Satellite brightness temperature radiances** NOAA-16 ; instrument: AMSU-A ; Nov 2000-Dec 2001
- Satellite brightness temperature radiances** NOAA-16 ; instrument: HIRS ; Jan 2001-Dec 2001
- Satellite retrievals surface wind speed** DMSP F-8 ; instrument: SSM/I ; Nov 1987-Dec 1991 ; Major gap(s): 41 days after 03 Dec 1987
- Satellite retrievals surface wind speed** DMSP F-10 ; instrument: SSM/I ; Jan 1992-Dec 1992
- Satellite retrievals surface wind speed** DMSP F-11 ; instrument: SSM/I ; Jan 1993-Dec 1995
- Satellite retrievals surface wind speed** DMSP F-13 ; instrument: SSM/I ; Jan 1996-Dec 2001
- Satellite retrievals surface wind speed** DMSP F-14 ; instrument: SSM/I ; Aug 1999-Dec 2001
- Satellite retrievals Precipitable Water Content (PWC)** DMSP-F8 ; instrument: SSM/I ; Nov 1987-Dec 1991 ; Major gap(s): 41 days after 03 Dec 1987

Satellite retrievals Precipitable Water Content (PWC) DMSP-F10 ; instrument: SSM/I ; Jan 1992-Dec 1992

Satellite retrievals Precipitable Water Content (PWC) DMSP-F11 ; instrument: SSM/I ; Jan 1993-Dec 1995

Satellite retrievals Precipitable Water Content (PWC) DMSP-F13 ; instrument: SSM/I ; Jan 1996-Dec 2001

Satellite retrievals Precipitable Water Content (PWC) DMSP-F14 ; instrument: SSM/I ; Aug 1999-Dec 2001

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 ; GMS_103 ; Dec 1984-Dec 1988

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 ; GMS_104 ; Jan 1991-Jun 1995

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 ; GMS_105/GMS_145 ; Jun 1995-Jan 1997 ; Major gap(s): Jul 1995-Sep 1996

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 ; GMS_120 ; Jun 1991-Jun 1991

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 ; GMS_125 /GOES_252/ GOES_253/ GOES_272/ GOES_273/ METEOSAT_31/ METEOSAT_33/ METEOSAT_35 ; Sep 1996-Jan 1997

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 ; GMS_144 ; Jul 1994-Jun 1995

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 ; GOES_200 ; Dec 1984-Jul 1995 ; Major gap(s): Jan 1989-Jan 1991

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 ; INDSAT_422 ; Feb 1992-Feb 1992

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 ; INDSAT_440 ; Oct 1991-Oct 1991

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 ; METEOSAT_0 ; Jul 1979-May 1982

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 ; METEOSAT_1 ; Feb 1981-Sep 1988 ; Major gap(s): 88 days after 21 Dec 1981, 56 days after 19 Mar 1982, May 1982-Aug 1988

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 ; METEOSAT_2 ; Dec 1981-May 1982

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 ; METEOSAT_24 ; Jun 1991-Feb 1994 ; Major gap(s): 63 days after 11 Nov 1991

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 ; METEOSAT_25 ; Feb 1992-Jul 1995 ; Major gap(s): 196 days after 25 Feb 1992, 222 days after 24 Sep 1992, 192 days after 07 May 1993, 78 days after 18 Nov 1993

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 ; METEOSAT_3 ; Sep 1988-Jan 1991 ; Major gap(s): Dec 1988-Jan 1991

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 ; METEOSAT_4 ; Jan 1991-Feb 1994

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 ; METEOSAT_45 ; Jul 1994-Jul 1995

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 ; METEOSAT_5 ; May 1991-Jul 1995 ; Major gap(s): 207 days after 03 May 1991, 74 days after 29 Nov 1991, 196 days after 25 Feb 1992, 222 days after 24 Sep 1992, 181 days after 07 May 1993, 78 days after 18 Nov 1993

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 ; METEOSAT_50 ; Feb 1991-Feb 1991

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 GMS_101 ; VIS ; Jan 1979-Jun 1979 ; Major gap(s): 61 days after 01 Mar 1979

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 GMS_101 ; WVMIX ; Jan 1979-Dec 1993 ; Major gap(s): Nov 1979-Jan 1981, 90 days after 29 Jun 1984, Dec 1985-Jan 1987

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 GMS_103 ; IR ; Jan 1989-Dec 1989

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 GMS_104 ; IR ; Dec 1989-Dec 1990

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 GMS_105 ; IR ; Jul 1995-Dec 2001 ; Major gap(s): 96 days after 28 Sep 1996

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 GMS_125 ; WVMIX ; Mar 1996-Dec 2001 ; Major gap(s): 96 days after 28 Sep 1996

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 GMS_145 ; VIS ; Jul 1995-Dec 2001 ; Major gap(s): 96 days after 28 Sep 1996

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 GMS_152 ; IR ; Nov 1997-Nov 1997

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 GMS_172 ; WVMIX ; Nov 1997-Nov 1997

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 GMS_192 ; VIS ; Nov 1997-Nov 1997

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 GOES_200 ; IR ; Jan 1989-Jan 1996 ; Major gap(s): Jan 1991-Jul 1995

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 GOES_200 ; VIS/WVMIX ; Jan 1979-Nov 1979

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 GOES_222 ; IR ; Dec 1995-Dec 1995

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 GOES_252 ; IR ; Dec 1995-Dec 2001 ; Major gap(s): 96 days after 28 Sep 1996

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 GOES_253 ; IR ; Jan 1996-Jul 1998 ; Major gap(s): 96 days after 28 Sep 1996

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 GOES_254 ; IR ; Jul 1998-Dec 2001

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 GOES_272 ; WVMIX ; May 1996-Dec 1999 ; Major gap(s): 96 days after 28 Sep 1996, 34 days after 06 Apr 1999

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 GOES_273 ; WVMIX ; May 1996-Jul 1998 ; Major gap(s): 96 days after 28 Sep 1996

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 GOES_274 ; WVMIX ; Jul 1998-Dec 1999 ; Major gap(s): 34 days after 06 Apr 1999

- Satellite Atmospheric Motion Vector (AMV) BUFR type-88 GOES_292 ; VIS ; Oct 1999-Oct 1999**
- Satellite Atmospheric Motion Vector (AMV) BUFR type-88 GOES_294 ; VIS ; Oct 1999-Oct 1999**
- Satellite Atmospheric Motion Vector (AMV) BUFR type-88 INDSAT_410 ; IR ; Jul 1990-Jul 1990**
- Satellite Atmospheric Motion Vector (AMV) BUFR type-88 INDSAT_422 ; IR ; Oct 1990-Oct 1990**
- Satellite Atmospheric Motion Vector (AMV) BUFR type-88 INDSAT_429 ; IR ; Jul 1989-Jul 1989**
- Satellite Atmospheric Motion Vector (AMV) BUFR type-88 INDSAT_430 ; IR ; Jun 1990-Jun 1990**
- Satellite Atmospheric Motion Vector (AMV) BUFR type-88 METEOSAT_25 ; WVMIX ; Jul 1995-Nov 1995**
- Satellite Atmospheric Motion Vector (AMV) BUFR type-88 METEOSAT_3 ; IR ; Jan 1989-Dec 1990 ;**
Major gap(s): 219 days after 19 Jun 1989, 194 days after 19 Apr 1990, 36 days after 05 Nov 1990
- Satellite Atmospheric Motion Vector (AMV) BUFR type-88 METEOSAT_31 ; IR ; Aug 1995-Feb 1997 ;**
Major gap(s): 96 days after 28 Sep 1996
- Satellite Atmospheric Motion Vector (AMV) BUFR type-88 METEOSAT_33 ; VIS ; Aug 1995-Feb 1997 ;**
Major gap(s): 97 days after 28 Sep 1996
- Satellite Atmospheric Motion Vector (AMV) BUFR type-88 METEOSAT_35 ; WVMIX ; Aug 1995-Feb 1997 ;**
Major gap(s): 96 days after 28 Sep 1996
- Satellite Atmospheric Motion Vector (AMV) BUFR type-88 METEOSAT_4 ; IR ; Jun 1989-Dec 1990 ;**
Major gap(s): 85 days after 24 Jan 1990
- Satellite Atmospheric Motion Vector (AMV) BUFR type-88 METEOSAT_40 ; IR ; Jul 1996-Sep 1996**
- Satellite Atmospheric Motion Vector (AMV) BUFR type-88 METEOSAT_41 ; VIS ; Sep 1996-Jan 1997**
- Satellite Atmospheric Motion Vector (AMV) BUFR type-88 METEOSAT_45 ; VIS ; Jul 1995-Nov 1995**
- Satellite Atmospheric Motion Vector (AMV) BUFR type-88 METEOSAT_5 ; IR ; Jul 1995-Nov 1995**
- Satellite Atmospheric Motion Vector (AMV) BUFR type-88 METEOSAT_52 ; IR/WVMIX ; Jun 1998-Dec 1999 ;**
Major gap(s): 34 days after 06 Apr 1999
- Satellite Atmospheric Motion Vector (AMV) BUFR type-88 METEOSAT_52 ; VIS ; Jan 1997-Dec 1999 ;**
Major gap(s): Feb 1997-Jul 1998, 34 days after 05 Apr 1999, 63 days after 16 Aug 1999
- Satellite Atmospheric Motion Vector (AMV) BUFR type-88 METEOSAT_53 ; IR/VIS/WVMIX ; Feb 1997-**
Jan 1999 ; Major gap(s): 226 days after 05 Jun 1998
- Satellite Atmospheric Motion Vector (AMV) BUFR type-88 METEOSAT_54 ; IR/WVMIX ; Jun 1998-Dec 1999 ;**
Major gap(s): 34 days after 06 Apr 1999
- Satellite Atmospheric Motion Vector (AMV) BUFR type-88 METEOSAT_54 ; VIS ; Jun 1998-Dec 1999 ;**
Major gap(s): 34 days after 06 Apr 1999, 63 days after 16 Aug 1999
- Satellite Atmospheric Motion Vector (AMV) BUFR type-88 METEOSAT_59 ; VIS ; Dec 1978-Dec 1978**

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 METEOSAT_60 ; VIS/WVMIX ; Dec 1978-Dec 1978

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 METEOSAT_61 ; VIS/WVMIX ; Dec 1978-Dec 1978

Satellite Atmospheric Motion Vector (AMV) BUFR type-88 METEOSAT_68 ; VIS/WVMIX ; Dec 1978-Dec 1978

Satellite Atmospheric Motion Vector (AMV) BUFR type-89 METEOSAT_50 ; VIS ; Jun 1997-Jun 1997

Satellite Atmospheric Motion Vector (AMV) BUFR type-89 METEOSAT_52 ; VIS ; Jun 1998-Sep 1998

Satellite Atmospheric Motion Vector (AMV) BUFR type-89 METEOSAT_53 ; VIS ; Apr 1997-Jun 1998

Satellite Atmospheric Motion Vector (AMV) BUFR type-89 METEOSAT_54 ; VIS ; Jun 1998-Sep 1998

Satellite Atmospheric Motion Vector (AMV) BUFR type-90 METEOSAT-5 ; IR/VIS/WVCL/WVMW ; Jun 1998-Dec 2001

Satellite Atmospheric Motion Vector (AMV) BUFR type-90 METEOSAT-6 ; IR/VIS/WVMW ; Dec 1997-Jun 1998

Satellite Atmospheric Motion Vector (AMV) BUFR type-90 METEOSAT-6 ; WVCL ; Feb 1998-Jun 1998

Satellite Atmospheric Motion Vector (AMV) BUFR type-90 METEOSAT-6 ; WVMIX ; Dec 1997-Feb 1998

Satellite Atmospheric Motion Vector (AMV) BUFR type-90 METEOSAT-7 ; IR/VIS/WVCL/WVMW ; Jun 1998-Dec 2001

Satellite Atmospheric Motion Vector (AMV) BUFR type-90 METEOSAT-2 ; IR/VIS/WVCL ; May 1982-Aug 1988

Satellite Scatterometers ERS-1 and ERS-2 ; U10 ; Jan 1993-Feb 2001

2.2 Observations assimilated in ERA-40 land surface analyses

In situ observations of 2-meter temperature, 2-meter humidity, and snow

2.3 Observations assimilated in ERA-40 ocean wave analyses

Satellite altimeter wave-height observations from ERS-1 Fast Delivery Product (FDP), found to be problematic ; Dec 1991-May 1993

Satellite altimeter wave-height observations from ERS-1 Fast Delivery Product (FDP), uncalibrated ; Jan 1994-May 1996

Satellite altimeter wave-height observations from ERS-2 Fast Delivery Product (FDP) ; June 1996-Dec 2001

2.4 Boundary fields relying on observations

The sea-surface-temperature (SST) and sea-ice cover fields used in ERA-40 come from the following sources:

HADISST1 monthly dataset (Rayner et al., 2003) ; Jan 1957-Nov 1981

NOAA/NCEP 2D-Var weekly dataset (Reynolds et al., 2002) ; Dec 1981-Jun 2001

NOAA/NCEP OISST V2 weekly dataset (Fiorino, 2004) ; Jul 2001-Dec 2001

For inquiries regarding the list of observations employed in the production of these datasets, users are advised to check directly with the appropriate dataset producer.

3 Observations assimilated in ERA-Interim, as of January 2010

3.1 Observations assimilated in ERA-Interim 4D-Var upper-air analyses

3.1.1 Aircraft observations

Aircraft ACARS_Aircraft_Report ; T/U ; Jan 1989-Jan 2010 ; Major gap(s): Jan 1995-Jun 1999

Aircraft AIREP_Aircraft_Report ; T/U ; Jan 1989-Jan 2010

Aircraft AMDAR_Aircraft_Report ; T/U ; Jan 1992-Jan 2010

3.1.2 Ocean drifter observations

Ocean drifter BATHY_Buoy_Report ; U ; Jan 1989-Oct 2009 ; Major gap(s): 54 days after 22 Dec 1999, 299 days after 22 Feb 2000, 359 days after 02 Mar 2001, 244 days after 25 Feb 2002, 51 days after 30 Oct 2002, 49 days after 20 Dec 2002, 238 days after 14 Feb 2003, 59 days after 11 Oct 2003, 46 days after 17 Apr 2004, 104 days after 22 Feb 2005, 30 days after 11 Jun 2005, 135 days after 14 Jul 2005, 49 days after 22 Dec 2005, 63 days after 18 Mar 2006, 31 days after 04 Aug 2006, 64 days after 09 Sep 2006, 33 days after 27 Jan 2007, 40 days after 13 May 2007, 33 days after 13 Aug 2007, 34 days after 18 Sep 2007, 31 days after 04 Sep 2008, 31 days after 11 Oct 2008, 49 days after 24 Jan 2009, 38 days after 15 Mar 2009, 64 days after 25 Apr 2009, 78 days after 01 Jul 2009

Ocean drifter BATHY_Buoy_Report ; U10 ; Jan 1989-Dec 2009 ; Major gap(s): 52 days after 24 Nov 1995, 35 days after 07 Apr 2000, 99 days after 24 May 2000, 140 days after 25 Sep 2000, 149 days after 21 Feb 2001, 56 days after 21 Jul 2001, 31 days after 16 Nov 2001, 52 days after 19 Dec 2001, 86 days after 28 Feb 2002, 55 days after 05 Jun 2002, 55 days after 18 Sep 2002, 102 days after 09 Dec 2002, 71 days after 22 Mar 2003, 44 days after 15 Jul 2003, 30 days after 04 Nov 2003, 34 days after 23 Feb 2005, 64 days after 08 Apr 2005, 47 days after 16 Jul 2005, 34 days after 11 Oct 2005, 45 days after 09 Feb 2006, 32 days after 14 Apr 2006, 50 days after 13 Nov 2006, 32 days after 12 Feb 2007, 66 days after 04 Feb 2009, 41 days after 28 Apr 2009, 47 days after 21 Jun 2009

Ocean drifter DRIBU_Buoy_Report ; PS/U10 ; Jan 1989-Jan 2010

Ocean drifter DRIBU_Buoy_Report ; U ; Jan 1989-Jan 2010 ; Major gap(s): 53 days after 30 Jan 1998, 70 days after 22 Jul 1998, 169 days after 10 Nov 1998, 30 days after 28 Apr 1999, Nov 1999-Dec 2001, Dec 2001-Mar 2003, 94 days after 27 Mar 2003, Jun 2003-Sep 2005, 118 days after 24 May 2006, 168 days after 11 Dec 2006

Ocean drifter TESAC_Buoy_Report ; U ; Jan 1989-Oct 1994 ; Major gap(s): 44 days after 10 May 1989, 33 days after 03 Jul 1989, 62 days after 04 Jun 1990, 61 days after 06 Aug 1990, 34 days after 05 Dec 1990, 32 days after 06 Feb 1991, 43 days after 15 Apr 1991, 70 days after 30 May 1991, 31 days after 29 Aug 1991, 52 days after 25 Oct 1991, 141 days after 12 Jan 1992, 39 days after 03 Jun 1992, 70 days after 13 Jul 1992, 79 days after 26 Sep 1992, 106 days after 15 Dec 1992, 30 days after 21 May 1993, 95 days after 30 Jun 1993, 149 days after 04 Oct 1993, 196 days after 11 Mar 1994

Ocean drifter TESAC_Buoy_Report ; U10 ; Jan 1989-Sep 1994 ; Major gap(s): 38 days after 29 Oct 1990, 32 days after 18 Jul 1991, 42 days after 24 Oct 1991, 43 days after 31 Jan 1992, 52 days after 19 Mar 1992, 37 days after 11 Jul 1992, 36 days after 19 Oct 1992, 40 days after 28 Nov 1992, 69 days after 08 Feb 1993, 39 days after 23 Apr 1993, 43 days after 13 Jul 1993, 128 days after 28 Nov 1993, 31 days after 15 Jun 1994, 37 days after 12 Aug 1994

3.1.3 Wind profiler observations

American_Wind_Profiler ; U ; Feb 1994-Jan 2010

European_Wind_Profiler ; U ; Jan 2002-Jan 2010

Japanese_Wind_Profiler ; U ; May 2002-Jan 2010

3.1.4 Balloon-borne observations

Ascending balloon-borne PILOT_Land_Report ; U ; Jan 1989-Jan 2010

Ascending balloon-borne PILOT_SHIP_Report ; U ; Jan 1989-Sep 1999 ; Major gap(s): 51 days after 08 Mar 1990, 146 days after 28 Apr 1990, 30 days after 29 Oct 1990, 53 days after 05 Dec 1990, 46 days after 19 Feb 1991, 147 days after 07 May 1991, 65 days after 02 Oct 1991, 65 days after 11 Dec 1991, Feb 1992-Jul 1999

Ascending balloon-borne Mobile_TEMP_Report ; Q ; Jan 1989-Nov 2008 ; Major gap(s): 50 days after 10 Jan 1991, 54 days after 07 Oct 1991, Dec 1994-May 2006, 65 days after 19 Aug 2006, 47 days after 01 Nov 2006, 40 days after 01 Mar 2007, 95 days after 15 Mar 2008, 59 days after 19 Jun 2008, 54 days after 23 Aug 2008

Ascending balloon-borne Mobile_TEMP_Report ; T/U ; Jan 1989-Nov 2008 ; Major gap(s): 50 days after 10 Jan 1991, 54 days after 07 Oct 1991, Dec 1994-May 2006, 65 days after 20 Aug 2006, 47 days after 01 Nov 2006, 40 days after 01 Mar 2007, 95 days after 15 Mar 2008, 59 days after 19 Jun 2008, 54 days after 23 Aug 2008

Ascending balloon-borne Mobile_TEMP_Report ; U10 ; Jan 1989-Aug 2008 ; Major gap(s): 50 days after 09 Jan 1991, 30 days after 02 May 1991, 55 days after 07 Oct 1991, Dec 1994-May 2006, 193 days after 05 Jul 2006, Feb 2007-Aug 2008

Ascending balloon-borne TEMP_Land_Report ; Q/T/U ; Jan 1989-Jan 2010

Ascending balloon-borne TEMP_SHIP_Report ; Q/T/U ; Jan 1989-Jan 2010

3.1.5 Dropsonde observations

Descending TEMP_Dropsonde_Report ; Q ; Jan 1989-Dec 2009 ; Major gap(s): 50 days after 09 Jan 1991, 49 days after 13 Mar 1991, 59 days after 05 Oct 1991, 34 days after 23 Feb 1992, 35 days after 30 Mar 1992, 79 days after 05 May 1992, 30 days after 30 Aug 1992, 40 days after 28 Oct 1992, 80 days after 22 Jan 1995, 50 days after 13 Apr 1995, 41 days after 13 Jan 1996, 56 days after 25 Mar 1996, 42 days after 18 Jun 1996, 75 days after 29 Oct 1998, 89 days after 26 Feb 1999, 36 days after 10 Jun 1999, 34 days after 04 Dec 1999, 114 days after 15 Mar 2000, 32 days after 08 Jul 2000, 63 days after 11 Nov 2000, 101 days after 06 Mar 2001, 74 days after 05 Nov 2001, 90 days after 20 Mar 2002, 51 days after 15 Oct 2002

Descending TEMP_Dropsonde_Report ; T ; Jan 1989-Dec 2009 ; Major gap(s): 50 days after 09 Jan 1991, 49 days after 13 Mar 1991, 59 days after 05 Oct 1991, 34 days after 23 Feb 1992, 35 days after 30 Mar 1992, 77 days after 07 May 1992, 30 days after 30 Aug 1992, 40 days after 28 Oct 1992, 80 days after 22 Jan 1995, 50 days after 13 Apr 1995, 41 days after 13 Jan 1996, 56 days after 25 Mar 1996, 42 days

after 18 Jun 1996, 75 days after 29 Oct 1998, 89 days after 26 Feb 1999, 36 days after 10 Jun 1999, 34 days after 04 Dec 1999, 114 days after 15 Mar 2000, 32 days after 08 Jul 2000, 63 days after 11 Nov 2000, 101 days after 06 Mar 2001, 74 days after 05 Nov 2001, 90 days after 20 Mar 2002, 51 days after 15 Oct 2002

Descending TEMP_Dropsonde_Report ; U ; Jan 1989-Dec 2009 ; Major gap(s): 50 days after 09 Jan 1991, 49 days after 13 Mar 1991, 59 days after 05 Oct 1991, 34 days after 23 Feb 1992, 35 days after 30 Mar 1992, 86 days after 07 May 1992, 30 days after 30 Aug 1992, 40 days after 28 Oct 1992, 80 days after 22 Jan 1995, 50 days after 13 Apr 1995, 81 days after 20 Dec 1995, 56 days after 25 Mar 1996, 89 days after 22 May 1996, 73 days after 09 Oct 1997, 75 days after 29 Oct 1998, 89 days after 26 Feb 1999, 36 days after 10 Jun 1999, 34 days after 04 Dec 1999, 114 days after 15 Mar 2000, 32 days after 08 Jul 2000, 63 days after 11 Nov 2000, 101 days after 06 Mar 2001, 74 days after 05 Nov 2001, 90 days after 20 Mar 2002, 51 days after 15 Oct 2002

3.1.6 Surface observations

Surface station SYNOP-SHIP_Report ; PS/U/Z ; Jan 1989-Jan 2010

Surface station SYNOP-SHIP_Report ; U10 ; Jan 1989-Jan 2010 ; Major gap(s): 32 days after 15 Dec 2005, 42 days after 16 Dec 2008, 31 days after 07 Apr 2009

Surface station SYNOP_Automatic_SHIP_Report ; PS/U/U10/Z ; Jan 1989-Jan 2010

Surface station SYNOP_Land_Automatic_Report ; H2/PS/Z ; Jan 1989-Jan 2010

Surface station SYNOP_Land_Manual_Report ; H2/PS/Z ; Jan 1989-Jan 2010

Surface station SYNOP_METAR ; PS ; Mar 2004-Jan 2010

Surface station SYNOP_SHip-REDuced (SHRED)_Report ; PS/U ; Jan 1989-Jan 2010

Surface station SYNOP_SHip-REDuced (SHRED)_Report ; U10 ; Jan 1989-Oct 2007 ; Major gap(s): 40 days after 03 Mar 1989, 93 days after 16 Jan 1990, 44 days after 27 Mar 2000, 63 days after 21 Jul 2002, 185 days after 23 Sep 2002, 55 days after 30 Mar 2003, 37 days after 11 Jul 2003, 181 days after 22 Sep 2003, 85 days after 11 May 2004, 130 days after 05 Aug 2004, 93 days after 14 Dec 2004, 178 days after 18 Mar 2005, 90 days after 12 Sep 2005, 48 days after 12 Dec 2005, 240 days after 30 Jan 2006, Sep 2006-Oct 2007

Surface station SYNOP_SHip-REDuced (SHRED)_Report ; Z ; Jan 1989-Jan 2009 ; Major gap(s): 53 days after 09 Aug 1989, 36 days after 22 Dec 1989, 31 days after 24 May 1990, 30 days after 24 Jun 1990, 31 days after 17 Sep 1990, 50 days after 18 Sep 1994, 36 days after 17 Feb 1996, 40 days after 12 May 1996, 51 days after 25 Jun 1996, 34 days after 16 Aug 1996, 32 days after 27 Dec 1996, 51 days after 28 Jan 1997, 50 days after 19 Jul 1997, 36 days after 23 Mar 1998, 32 days after 29 Apr 1998, 30 days after 06 Jul 1998, 32 days after 06 Aug 1998, 80 days after 04 Jun 1999, 38 days after 24 Aug 1999, 38 days after 25 Jan 2000, 36 days after 25 Apr 2000, 37 days after 26 Jun 2000, 34 days after 02 Aug 2000, 40 days after 01 Nov 2000, 51 days after 02 May 2001, 54 days after 24 Jul 2001, 37 days after 17 Sep 2001, 87 days after 18 Feb 2002, 31 days after 17 May 2002, 100 days after 07 Jul 2002, 93 days after 02 Jan 2003, 34 days after 05 Apr 2003, 106 days after 10 May 2003, 131 days after 25 Aug 2003, 53 days after 04 Jan 2004, 180 days after 27 Feb 2004, 72 days after 25 Aug 2004, 267 days after 06 Nov 2004, 55 days after 31 Jul 2005, Sep 2005-Nov 2006, 33 days after 04 Nov 2006, 94 days after 31 Dec 2006, 240 days after 04 Apr 2007, 295 days after 03 Jan 2008, 37 days after 24 Nov 2008

3.1.7 Satellite observations

Satellite ozone retrievals ADEOS-1 ; instrument: TOMS ; Oct 1996-Jun 1997 ; Major gap(s): 52 days after 08 Feb 1997

Satellite ozone retrievals METEOR-3 ; instrument: TOMS ; Aug 1991-Dec 1994

Satellite ozone retrievals NIMBUS-7 ; instrument: SBUV ; Jan 1989-Jun 1990

Satellite ozone retrievals NIMBUS-7 ; instrument: TOMS ; Jan 1989-May 1993 ; Major gap(s): 211 days after 01 Dec 1989

Satellite ozone retrievals EARTHPROBE ; instrument: TOMS ; Jul 1996-Oct 2002

Satellite ozone retrievals NOAA-9 ; instrument: SBUV ; Jan 1989-Feb 1998 ; Major gap(s): 76 days after 01 Sep 1990, 64 days after 26 Jan 1991, 30 days after 02 Aug 1993

Satellite ozone retrievals NOAA-11 ; instrument: SBUV ; Jan 1989-May 2003 ; Major gap(s): 30 days after 01 Mar 1991, Oct 1994-Jan 1998, Mar 2001-Jan 2003, 84 days after 08 Jan 2003, 30 days after 02 Apr 2003

Satellite ozone retrievals NOAA-14 ; instrument: SBUV ; Jan 1996-Jan 2006 ; Major gap(s): 42 days after 01 Oct 2001, 35 days after 11 Feb 2002, 31 days after 27 Sep 2002, 61 days after 23 Jan 2003, 30 days after 22 Sep 2003, 50 days after 22 Jan 2004, 45 days after 10 Sep 2004, 33 days after 31 Jan 2005

Satellite ozone retrievals NOAA-16 ; instrument: SBUV ; Oct 2000-Oct 2008

Satellite ozone retrievals NOAA-17 ; instrument: SBUV ; Jan 2003-Jan 2010 ; Major gap(s): 83 days after 25 Jan 2003, 31 days after 27 Jan 2004, 33 days after 17 Mar 2004, 68 days after 24 Aug 2004, 33 days after 04 Feb 2005, 42 days after 09 Mar 2005

Satellite ozone retrievals NOAA-18 ; instrument: SBUV ; Oct 2005-Jan 2010 ; Major gap(s): 66 days after 23 May 2008

Satellite ozone retrievals ERS-2 ; instrument: GOME ; Jan 1996-Dec 2002 ; Major gap(s): 32 days after 20 Jun 1996, 259 days after 15 Jun 1998

Satellite ozone retrievals ENVISAT ; instrument: MIPAS ; Jan 2003-Mar 2004

Satellite ozone retrievals ENVISAT ; instrument: SCIAMACHY ; Jan 2003-Dec 2008

Satellite ozone retrievals EOS-Aura ; instrument: MLS ; Jan 2008-Jan 2010 ; Major gap(s): 183 days after 01 Dec 2008

Satellite ozone retrievals EOS-Aura ; instrument: OMI ; Jan 2008-Jan 2010 ; Major gap(s): 135 days after 27 Jan 2008, 44 days after 28 Jan 2009

Satellite brightness temperature radiances DMSP-F8 ; instrument: SSM/I ; Jan 1989-Jan 1992

Satellite brightness temperature radiances DMSP-F10 ; instrument: SSM/I ; Jan 1992-Jan 1993

Satellite brightness temperature radiances DMSP-F11 ; instrument: SSM/I ; Jan 1993-Jan 1996

Satellite brightness temperature radiances DMSP-F13 ; instrument: SSM/I ; Jan 1996-Nov 2009

Satellite brightness temperature radiances DMSP-F14 ; instrument: SSM/I ; Jun 1999-Aug 2008

- Satellite brightness temperature radiances** DMSP-F15 ; instrument: SSM/I ; Jun 2000-Aug 2006
- Satellite brightness temperature radiances** DMSP-F16 ; instrument: SSM/I-S ; Jan 2009-Jan 2010
- Satellite brightness temperature radiances** EOS-Aqua ; instrument: AIRS ; Apr 2003-Jan 2010 ; Major gap(s): 33 days after 29 Oct 2003
- Satellite brightness temperature radiances** EOS-Aqua ; instrument: AMSR-E ; Jan 2009-Jan 2010
- Satellite brightness temperature radiances** GOES_10_254 ; instrument: GOESIMG ; Oct 2001-Dec 2007 ; Major gap(s): Jun 2006-Dec 2007
- Satellite brightness temperature radiances** GOES_11_255 ; instrument: GOESIMG ; Oct 2006-Jan 2010
- Satellite brightness temperature radiances** GOES_12_256 ; instrument: GOESIMG ; Apr 2003-Jan 2010 ; Major gap(s): 30 days after 15 Dec 2008
- Satellite brightness temperature radiances** GOES_8_252 ; instrument: GOESIMG ; Oct 2001-Mar 2003
- Satellite brightness temperature radiances** GOES_9_253 ; instrument: GOESIMG ; May 2003-Nov 2005 ; Major gap(s): 54 days after 14 Aug 2003
- Satellite brightness temperature radiances** METEOSAT-5 ; instrument: MVIRI ; Jun 2006-Feb 2007
- Satellite brightness temperature radiances** METEOSAT-7 ; instrument: MVIRI ; Feb 2007-Jan 2010
- Satellite brightness temperature radiances** METEOSAT-8 ; instrument: SEVIRI ; Jun 2006-Aug 2009 ; Major gap(s): Apr 2007-Nov 2008, 84 days after 10 Dec 2008, 41 days after 05 Mar 2009, 113 days after 24 Apr 2009
- Satellite brightness temperature radiances** METEOSAT-9 ; instrument: SEVIRI ; Mar 2007-Jan 2010
- Satellite brightness temperature radiances** METOP-A ; instrument: AMSU-A ; Nov 2006-Jan 2010
- Satellite brightness temperature radiances** METOP-A ; instruments: HIRS/MHS ; Dec 2006-Jan 2010
- Satellite brightness temperature radiances** MTSAT-1R ; instrument: MTSATIMG ; Nov 2007-Jan 2010
- Satellite brightness temperature radiances** NOAA-10 ; instruments: HIRS/MSU ; Jan 1989-Sep 1991
- Satellite brightness temperature radiances** NOAA-11 ; instrument: HIRS ; Jan 1989-Apr 2000 ; Major gap(s): Jan 1995-Jul 1997
- Satellite brightness temperature radiances** NOAA-11 ; instrument: MSU ; Jan 1989-Feb 1999 ; Major gap(s): Jan 1995-Jul 1997
- Satellite brightness temperature radiances** NOAA-11 ; instrument: SSU ; Jan 1989-Jan 2003 ; Major gap(s): Jan 1995-Jul 1997
- Satellite brightness temperature radiances** NOAA-12 ; instruments: HIRS/MSU ; Jul 1991-May 1997
- Satellite brightness temperature radiances** NOAA-14 ; instrument: HIRS ; Apr 1995-Dec 2004
- Satellite brightness temperature radiances** NOAA-14 ; instrument: MSU ; Apr 1995-Sep 2006
- Satellite brightness temperature radiances** NOAA-14 ; instrument: SSU ; Jan 1995-May 2006

- Satellite brightness temperature radiances** NOAA-15 ; instrument: AMSU-A ; Aug 1998-Jan 2010
- Satellite brightness temperature radiances** NOAA-15 ; instrument: HIRS ; Aug 1998-Jun 2000
- Satellite brightness temperature radiances** NOAA-16 ; instruments: AMSU-A/AMSU-B ; Oct 2000-Jan 2010
- Satellite brightness temperature radiances** NOAA-16 ; instrument: HIRS ; Oct 2000-May 2004
- Satellite brightness temperature radiances** NOAA-17 ; instrument: AMSU-A ; Jul 2002-Oct 2003
- Satellite brightness temperature radiances** NOAA-17 ; instrument: AMSU-B ; Aug 2002-Jan 2010
- Satellite brightness temperature radiances** NOAA-17 ; instrument: HIRS ; Jul 2002-Jan 2010
- Satellite brightness temperature radiances** NOAA-18 ; instruments: AMSU-A/MHS ; Jul 2005-Jan 2010
- Satellite brightness temperature radiances** NOAA-18 ; instrument: HIRS ; Jul 2005-Mar 2009
- Satellite brightness temperature radiances** NOAA-19 ; instrument: AMSU-A/HIRS/MHS ; May 2009-Jan 2010
- Satellite brightness temperature radiances** EOS-Aqua ; instrument: AMSU-A ; Dec 2002-Jan 2010
- Satellite retrievals Precipitable Water Content (PWC)** DMSP-F8 ; instrument: SSM/I ; Jan 1989-Jan 1992
- Satellite retrievals Precipitable Water Content (PWC)** DMSP-F10 ; instrument: SSM/I ; Jan 1992-Jan 1993
- Satellite retrievals Precipitable Water Content (PWC)** DMSP-F11 ; instrument: SSM/I ; Jan 1993-Jan 1996
- Satellite retrievals Precipitable Water Content (PWC)** DMSP-F13 ; instrument: SSM/I ; Jan 1996-Nov 2009
- Satellite retrievals Precipitable Water Content (PWC)** DMSP-F14 ; instrument: SSM/I ; Jun 1999-Aug 2008
- Satellite retrievals Precipitable Water Content (PWC)** DMSP-F15 ; instrument: SSM/I ; Jun 2000-Aug 2006
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; GMS??? (101) ; Jan 1989-Jan 1994
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; GMS??? (120) ; Jun 1991-Jun 1991
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; GMS-3 IR (103) ; Jan 1989-Dec 1989
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; GMS-4 IR (104) ; Dec 1989-Jun 1995
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; GMS-4 VIS (144) ; Jul 1994-Jun 1995
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; GMS-5 IR (105) / GMS-5 VIS (145) ; Jun 1995-Jan 1997 ; Major gap(s): Jul 1995-Sep 1996
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; GMS-5 IR (105) ; Jul 1995-May 2003 ; Major gap(s): 96 days after 28 Sep 1996

- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; GMS-5 IR (152) ; Nov 1997-Nov 1997
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; GMS-5 WVMIX (125) ; Mar 1996-May 2003 ; Major gap(s): 96 days after 28 Sep 1996
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; GMS-5 WVMIX (125) ; Sep 1996-Jan 1997
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; GMS-5 WVMIX (172) ; Nov 1997-Nov 1997
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; GMS-5 VIS (145) ; Jul 1995-May 2003 ; Major gap(s): 96 days after 28 Sep 1996
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; GMS-5 VIS (192) ; Nov 1997-Nov 1997
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; INDSAT??? (429) ; Jul 1989-Jul 1989
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; GOES??? (200) ; Jan 1989-Jul 1995
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; GOES??? (200) ; Jul 1995-Jan 1996
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; GOES??? (222) ; Dec 1995-Dec 1995
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; GOES-8 IR (252) / GOES-9 IR (253) / GOES-8 (272) / GOES-9 WVMIX (273) ; Sep 1996-Jan 1997
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; GOES-8 IR (252) ; Dec 1995-Apr 2003 ; Major gap(s): 96 days after 28 Sep 1996
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; GOES-8 WVMIX (272) ; May 1996-Apr 2003 ; Major gap(s): 96 days after 28 Sep 1996, 34 days after 06 Apr 1999, Dec 1999-Jan 2002
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; GOES-9 IR (253) ; Jan 1996-Mar 2004 ; Major gap(s): 96 days after 28 Sep 1996, Jul 1998-May 2003
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; GOES-9 WVMIX (273) ; May 1996-Mar 2004 ; Major gap(s): 96 days after 28 Sep 1996, Jul 1998-May 2003
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; GOES-10 IR (254) ; Jul 1998-Mar 2004
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; GOES-10 WVMIX (274) ; Jul 1998-Mar 2004 ; Major gap(s): 34 days after 06 Apr 1999, Dec 1999-Jan 2002
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; GOES-12 IR (256) ; Apr 2003-Mar 2004
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; GOES-12 WVMIX (276) ; Apr 2003-Mar 2004
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; METEOSAT-4 WVMIX (24) ; Jun 1991-Feb 1994 ; Major gap(s): 63 days after 11 Nov 1991, Jan 1993-Jan 1994
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; METEOSAT-5 WVMIX (25) ; Feb 1992-Dec 1994 ; Major gap(s): 196 days after 25 Feb 1992, Sep 1992-Feb 1994
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; METEOSAT-3 IR (3) ; Jan 1989-Jan 1991 ; Major gap(s): 218 days after 20 Jun 1989, 194 days after 20 Apr 1990, 35 days after 06 Nov 1990, 39 days after 14 Dec 1990

- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; METEOSAT-3 IR (3) ; Feb 1991-Feb 1991
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; METEOSAT-4 IR (4) ; Jun 1989-Feb 1994 ;
Major gap(s): 84 days after 25 Jan 1990, Jan 1993-Jan 1994
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; METEOSAT-5 VIS (45) ; Jul 1994-Dec 1994
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-88 ; METEOSAT-5 IR (5) ; May 1991-Dec 1994
; Major gap(s): 207 days after 03 May 1991, 73 days after 30 Nov 1991, 195 days after 26 Feb 1992, Sep 1992-Feb 1994
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-90 ; MTSAT-1R ; IR/VIS ; Dec 2006-Jan 2010 ;
Major gap(s): 34 days after 19 May 2009
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-90 ; MTSAT-1R ; WVCL ; Dec 2006-Oct 2008
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-90 ; MTSAT-1R ; WVMIX ; Oct 2008-Jan 2010 ;
Major gap(s): 34 days after 19 May 2009
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-90 ; GOES-9 ; IR/VIS ; Jul 2003-Jul 2005
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-90 ; GOES-9 ; WVCL ; Aug 2004-Jul 2005 ;
Major gap(s): 209 days after 25 Aug 2004
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-90 ; GOES-9 ; WVMIX ; Jul 2003-Feb 2005
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-90 ; GOES-10 ; IR1/VIS1/WVCL3 ; Oct 2003-Jun 2006
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-90 ; GOES-11 ; IR1/VIS1 ; Aug 2006-Jan 2010
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-90 ; GOES-11 ; WVCL3 ; Aug 2006-Oct 2008
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-90 ; GOES-12 ; IR1/VIS1 ; Oct 2003-Jan 2010 ;
Major gap(s): 30 days after 15 Dec 2008
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-90 ; GOES-12 ; WVCL3 ; Oct 2003-Oct 2008
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-90 ; METEOSAT-3 ; IR/VIS/WVCL ; Jan 1995-May 1995
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-90 ; METEOSAT-4 ; IR/VIS/WVCL ; Jan 1993-Dec 1993
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-90 ; METEOSAT-5 ; IR/VIS/WVCL ; Jan 1995-Feb 2007 ; Major gap(s): Feb 1997-Jun 1998
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-90 ; METEOSAT-6 ; IR/VIS ; Feb 1997-Jun 1998
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-90 ; METEOSAT-6 ; WVCL ; Feb 1997-Jun 1998
; Major gap(s): 33 days after 31 Dec 1997
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-90 ; METEOSAT-6 ; WVMIX ; Dec 1997-Feb 1998

- Satellite Atmospheric Motion Vector (AMV)** BUFR type-90 ; METEOSAT-7 ; IR/VIS ; Jan 2006-Jan 2010 ; Major gap(s): Jan 2006-Feb 2007
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-90 ; METEOSAT-7 ; WVCL ; Jan 2006-Oct 2008 ; Major gap(s): Jan 2006-Feb 2007
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-90 ; METEOSAT-7 ; WVMIX ; Oct 2008-Jan 2010
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-90 ; METEOSAT-8 ; IR3/VIS2/WVCL1/WVCL2 ; Feb 2004-Mar 2007 ; Major gap(s): 38 days after 24 Sep 2006
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-90 ; METEOSAT-9 ; IR3/VIS2 ; Sep 2006-Jan 2010 ; Major gap(s): 160 days after 18 Oct 2006
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-90 ; METEOSAT-9 ; WVCL1/WVCL2 ; Sep 2006-Oct 2008 ; Major gap(s): 160 days after 18 Oct 2006
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-90 ; MODIS EOS-Terra ; IR/WVMW ; Feb 2007-Jan 2010 ; Major gap(s): 72 days after 19 Jan 2008
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-90 ; MODIS EOS-Terra ; WVCL ; Feb 2007-Oct 2008 ; Major gap(s): 72 days after 19 Jan 2008
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-90 ; MODIS EOS-Terra ; WVMIX ; Oct 2008-Jan 2010
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-90 ; MODIS EOS-Aqua ; IR/WVMW ; Feb 2007-Jan 2010 ; Major gap(s): 63 days after 28 Jan 2008
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-90 ; MODIS EOS-Aqua ; WVCL ; Feb 2007-Oct 2008 ; Major gap(s): 63 days after 28 Jan 2008
- Satellite Atmospheric Motion Vector (AMV)** BUFR type-90 ; MODIS EOS-Aqua ; WVMIX ; Oct 2008-Jan 2010
- Satellite Scatterometers** ERS-1 and ERS-2 ; U10 ; Apr 1992-Jan 2010 ; Major gap(s): Jan 2001-Aug 2003
- Satellite Scatterometer** QuikSCAT ; U10 ; Feb 2000-Nov 2009
- Satellite GPS radio occultation bending angle** ; CHAMP ; May 2001-Jun 2008 ; Major gap(s): 45 days after 02 Nov 2004, 38 days after 02 Jul 2006
- Satellite GPS radio occultation bending angle** ; COSMIC-1/COSMIC-4/COSMIC-5 ; Dec 2006-Jan 2010
- Satellite GPS radio occultation bending angle** ; COSMIC-2 ; Dec 2006-Jan 2010 ; Major gap(s): 38 days after 30 Jul 2008
- Satellite GPS radio occultation bending angle** ; COSMIC-3 ; Dec 2006-Jan 2010 ; Major gap(s): 43 days after 18 Feb 2008
- Satellite GPS radio occultation bending angle** ; COSMIC-6 ; Dec 2006-Jan 2010 ; Major gap(s): 66 days after 09 Sep 2007
- Satellite GPS radio occultation bending angle** ; METOP-A ; May 2008-Jan 2010

3.2 Observations assimilated in ERA-Interim land surface analyses

In situ observations of 2-meter temperature, 2-meter humidity, and snow

3.3 Observations assimilated in ERA-Interim ocean wave analyses

Satellite altimeter wave-height observations from ERS-1 Ocean Product (OPR) ; Aug 1991-Jun 1996

Satellite altimeter wave-height observations from ERS-2 Ocean Product (OPR) ; May 1995-Jul 2003

Satellite altimeter wave-height observations from ENVISAT ; Jul 2003-Jan 2010

Satellite altimeter wave-height observations from JASON-1 ; Oct 2003-Jan 2010

3.4 Boundary fields relying on observations

The sea-surface-temperature (SST) and sea-ice fields as used in ERA-Interim come from the following sources:

NOAA/NCEP 2D-Var weekly dataset (Reynolds et al., 2002) ; Jan 1989-Jun 2001

NOAA/NCEP OISST V2 weekly dataset (Fiorino, 2004) ; Jul 2001-Dec 2001

NOAA/NCEP Real-Time Global (RTG) daily dataset (Gemmill, 2007) ; Jan 2002-Jan 2009

Met Office Operational SST and Sea Ice Analysis (OSTIA) daily dataset (Stark et al., 2007) ; Feb 2009-Jan 2010

In addition, a twice-weekly sea-ice product from the Swedish Meteorological and Hydrological Institute (Drusch et al., 2006) was used over the Baltic sea from November 2004 until January 2009.

For inquiries regarding the list of observations employed in the production of these datasets, users are advised to check directly with the appropriate dataset producer.

4 References

- Fiorino M. 2004. A multi-decadal daily sea surface temperature and sea ice concentration data set for the ERA-40 reanalysis. ERA-40 Project Report Series 12. ECMWF, Reading, United Kingdom.
Available on-line: <http://www.ecmwf.int/publications>
- Reynolds RW, Rayner NA, Smith TM, Stokes DC, Wang W. 2002. An improved in situ and satellite SST analysis for climate. *J. Climate* 15(13), 1609-1625
- Uppala SM, Kållberg PW, Simmons AJ, Andrae U, Da Costa Bechtold V, Fiorino M, Gibson JK, Haseler J, Hernandez A, Kelly GA, Li X, Onogi K, Saarinen S, Sokka N, Allan RP, Andersson E, Arpe K, Balmaseda MA, Beljaars ACM, Van De Berg L, Bidlot J, Bormann N, Caires S, Chevallier F, Dethof A, Dragosavac M, Fisher M, Fuentes M, Hagemann S, Hólm E, Hoskins BJ, Isaksen L, Janssen PAEM, Jenne R, McNally AP, Mahfouf J-F, Morcrette J-J, Rayner NA, Saunders RW, Simon P, Sterl A, Trenberth KE, Untch A, Vasiljevic D, Viterbo P, Woollen J. 2005. The ERA-40 re-analysis. *Quart. J. Royal Meteorol. Soc.* 131(612):2961-3012 DOI:10.1256/qj.04.176
- Uppala SM, Dee D, Kobayashi S, Berrisford P, Simmons A. 2008. Towards a climate data assimilation system: status update of ERA-Interim. *European Centre for Medium-range Weather Forecasts Newsletter*. 115:12-18.
Available on-line: <http://www.ecmwf.int/publications>
- Rayner NA, Parker DE, Horton EB, Folland CK, Alexander LV, Rowell DP, Kent EC, Kaplan A. 2003. Global analyses of sea surface temperature, sea ice, and night marine air temperature since the late nineteenth century. *J. Geophys. Res.* 108(D14), 4407, DOI:10.1029/2002JD002670.
- Drusch, M, 2006: Sea Ice Concentration Analyses for the Baltic Sea and Their Impact on Numerical Weather Prediction. *J Appl. Meteor. Clim.* 45, 982-994, DOI:10.1175/JAM2376.1
- Gemmill W, Katz B, Li X. 2007: Daily Real-Time Global Sea Surface Temperature - High Resolution Analysis at NOAA/NCEP. NOAA/NWS/NCEP/MMAB Office Note Nr. 260, 39 pp.
Available on-line: http://polar.ncep.noaa.gov/mmab/papers/on260/sst_office_note.pdf
- Stark JD, Donlon CJ, Martin MJ, McCulloch ME. 2007. OSTIA: An operational, high resolution, real time, global sea surface temperature analysis system. *Oceans '07 IEEE Aberdeen, conference proceedings. Marine challenges: coastline to deep sea. Aberdeen, Scotland.IEEE.*
Available on-line: http://ghrsst-pp.metoffice.com/pages/latest_analysis/docs/Stark_et_al_OSTIA_description_Oceans07.pdf