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Supplement of

The importance of diabatic processes for the dynamics of synoptic-scale extratropical weather systems – a review

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Supplement

The following pages contain figures for the four “catalyst cyclones” discussed in the paper. The figures are all produced with ERA5 reanalysis data and serve to illustrate the structure and evolution of the four cyclones with synoptic and PV maps, and vertical cross sections (at selected times). The four catalyst cyclones are:

- QE II storm 00 UTC on 09 September – 18 UTC on 12 September 1978
- President’s Day cyclone 00 UTC on 17 February – 18 UTC on 22 February 1979
- U.K. Great October storm 00 UTC on 13 October – 18 UTC on 18 October 1987
- Lothar 00 UTC on 23 December – 18 UTC on 28 December 1999

The following fields are shown for each cyclone on horizontal maps at six-hourly intervals during the time periods indicated above:

- left panels: PV on 315 K (colours, in pvu) and MSLP (contours, every 4 hPa)
- middle panels: PV at 850 hPa (colours, in pvu) and MSLP (contours, every 4 hPa)
- right panels: potential temperature at 850 hPa (colours, in K), hourly accumulated total precipitation (light and dark blue contours for 2 and 5 mm h⁻¹, respectively), and MSLP (contours, every 4 hPa)

In addition, meridional (left panels, from S to N) and zonal (right panels, from W to E) vertical cross sections are shown through the centre of the cyclones at the time of minimum MSLP and at a few earlier times (as indicated specifically for each cyclone). Cross-sections show PV (colours, in PVU) and equivalent potential temperature (contours, every 3 K).

Acknowledgements: We are most grateful to Franziska Schnyder (ETH Zurich) for producing all figures shown in this Supplement.

QE II storm

Horizontal maps from 00 UTC on 09 September – 18 UTC on 12 September 1978

Vertical cross sections from 18 UTC on 09 September – 18 UTC on 10 September 1978

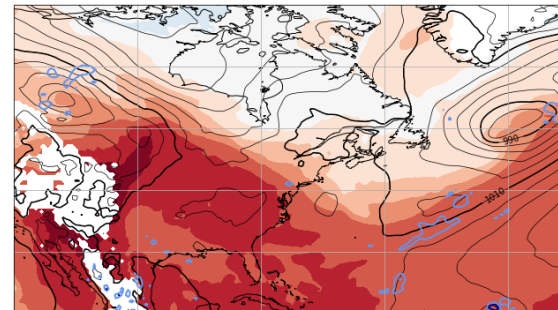
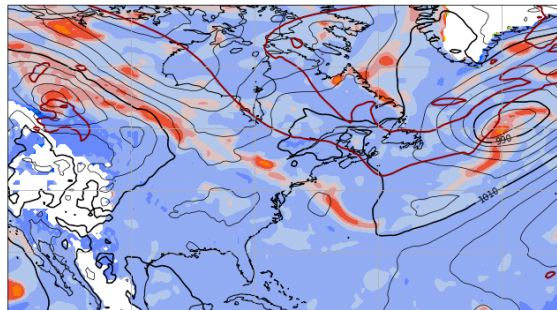
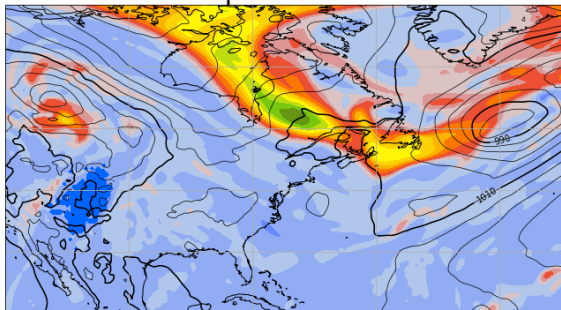
meridional cross sections (S to N)

date	cyclone center	cross sections		minimum MSLP
		from	to	
19780909_18	64°W / 39°N	64°W / 29°N	64°W / 49°N	998 hPa
19780910_00	58°W / 39.5°N	58°W / 29.5°N	58°W / 49.5°N	986 hPa
19780910_06	55°W / 41.5°N	55°W / 31.5°N	55°E / 51.5°N	970 hPa
19780910_12	51°W / 42.5°N	51°W / 32.5°N	51°W / 52.5°N	958 hPa
19780910_18	49°W / 45.5°N	49°W / 35.5°N	49°W / 55.5°N	958 hPa

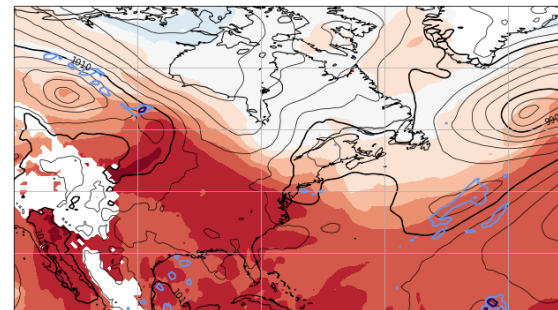
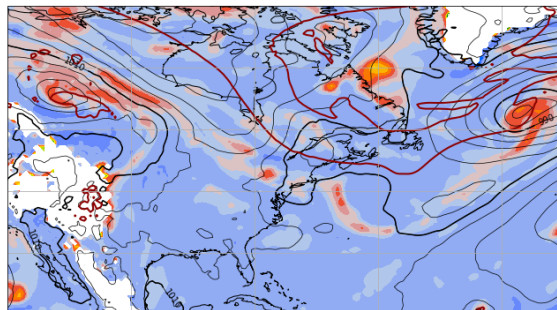
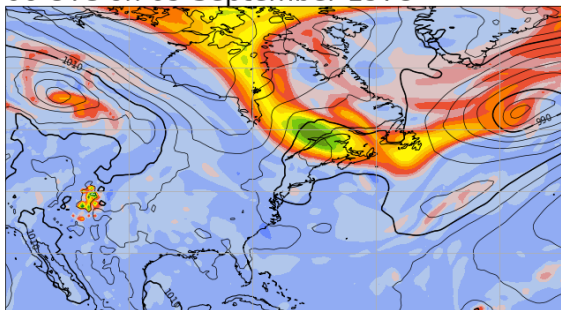
zonal cross sections (W to E)

date	cyclone center	cross sections		minimum MSLP
		from	to	
19780909_18	64°W / 39°N	84°W / 39°N	44°W / 39°N	998 hPa
19780910_00	58°W / 39.5°N	78°W / 39.5°N	38°W / 39.5°N	986 hPa
19780910_06	55°W / 41.5°N	75°W / 41.5°N	35°W / 41.5°N	970 hPa
19780910_12	51°W / 42.5°N	71°W / 42.5°N	31°W / 42.5°N	958 hPa
19780910_18	49°W / 45.5°N	69°W / 45.5°N	29°W / 45.5°N	958 hPa

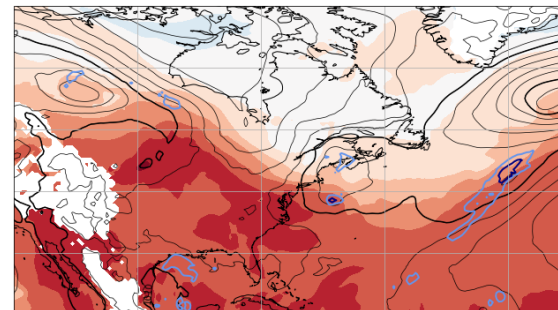
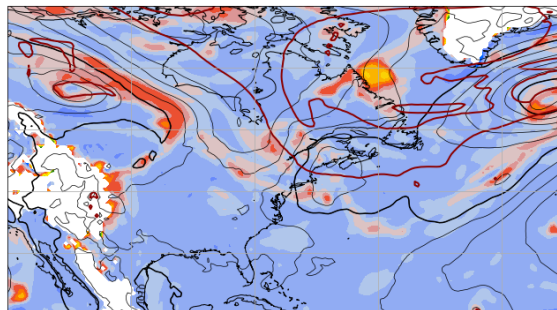
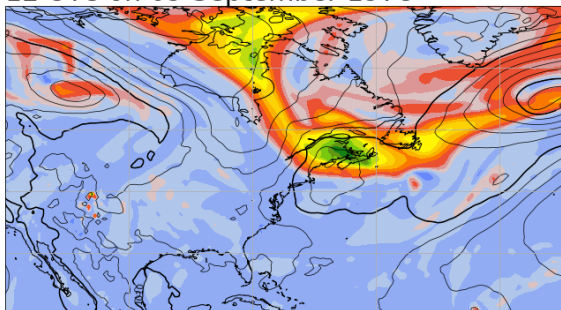
00 UTC on 09 September 1978



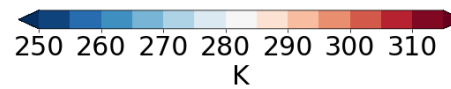
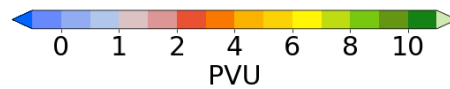
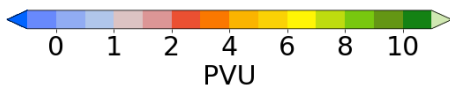
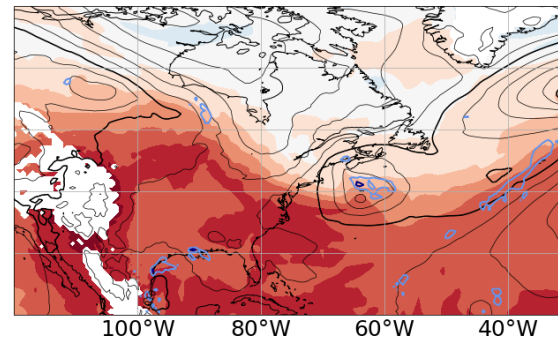
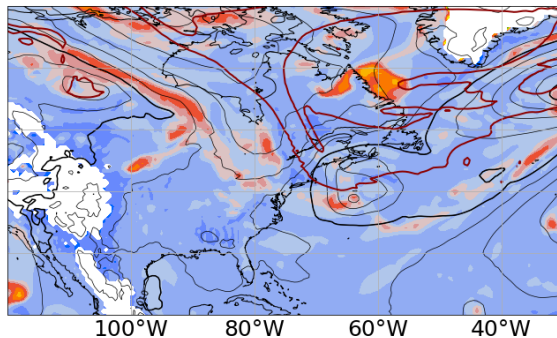
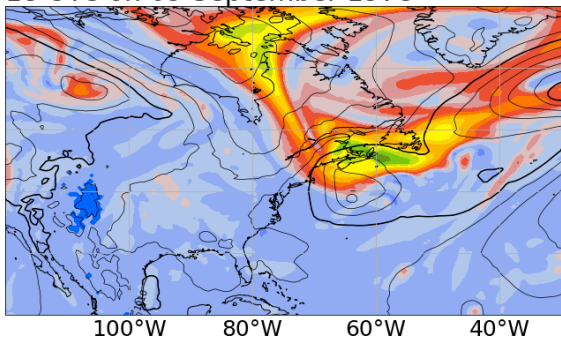
06 UTC on 09 September 1978



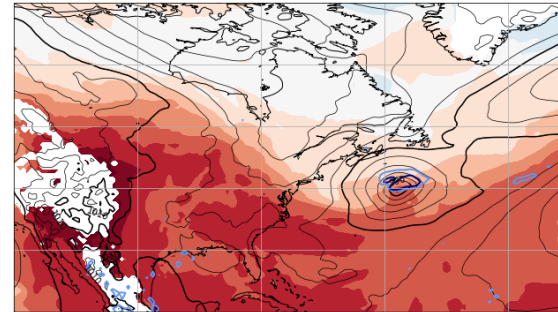
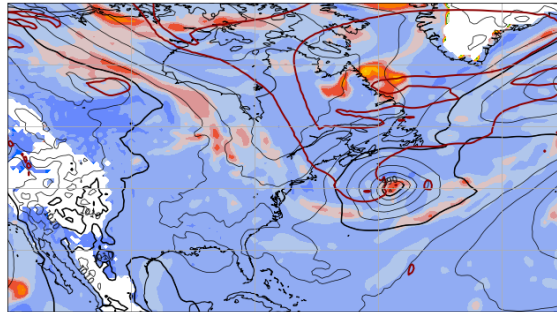
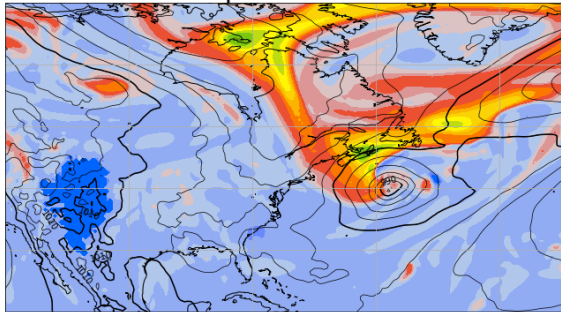
12 UTC on 09 September 1978



18 UTC on 09 September 1978

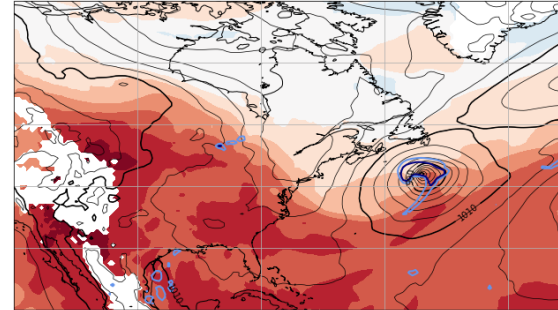
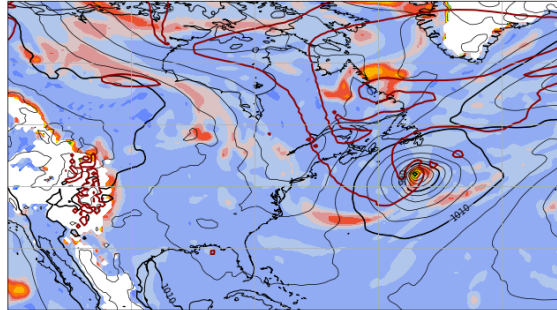
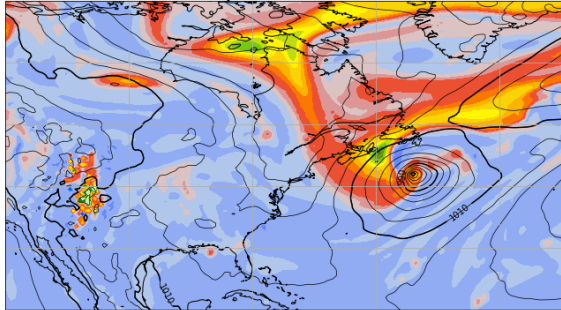


00 UTC on 10 September 1978



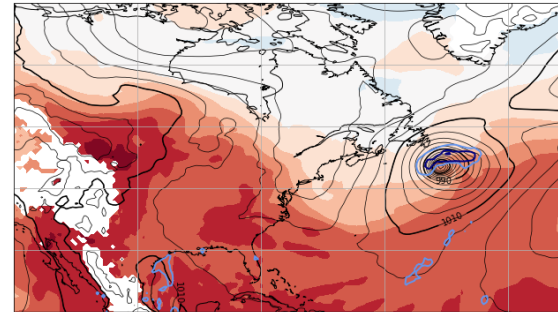
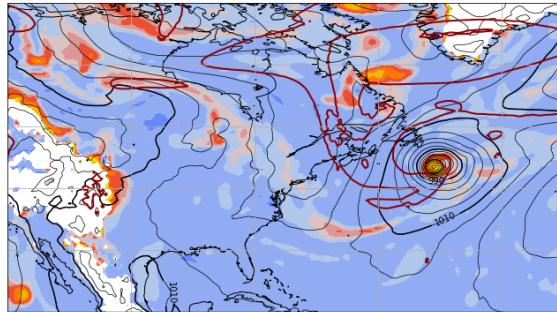
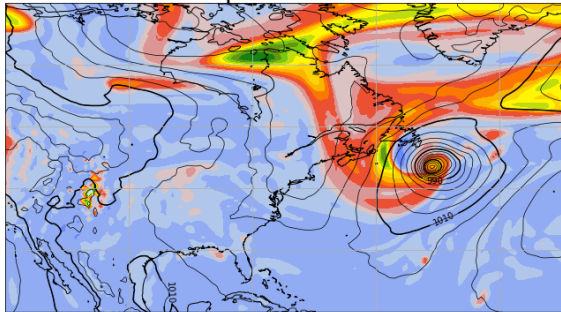
60°N
50°N
40°N
30°N

06 UTC on 10 September 1978



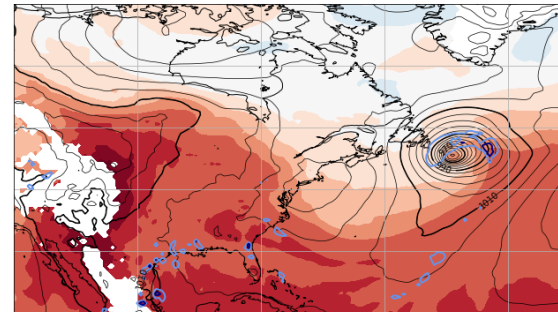
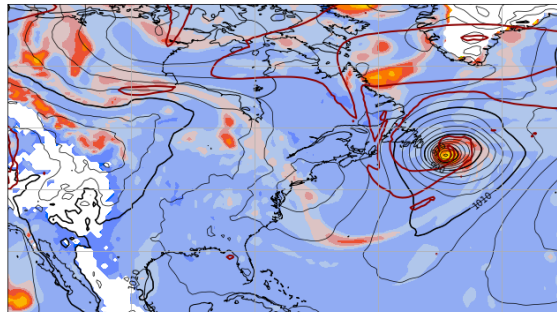
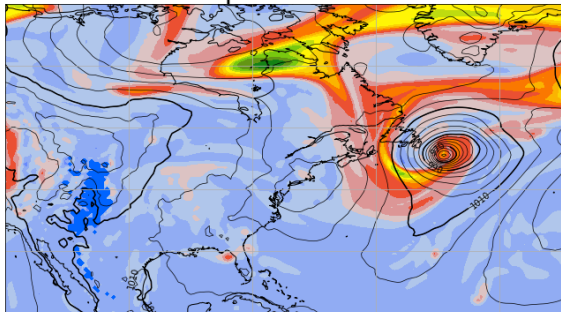
60°N
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30°N

12 UTC on 10 September 1978

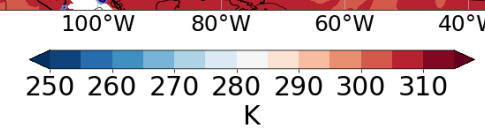
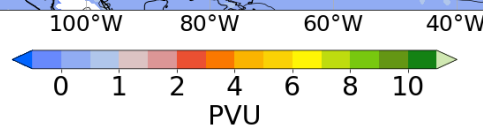
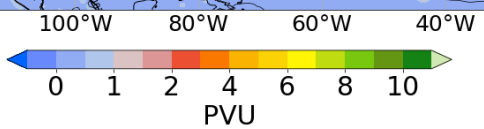


60°N
50°N
40°N
30°N

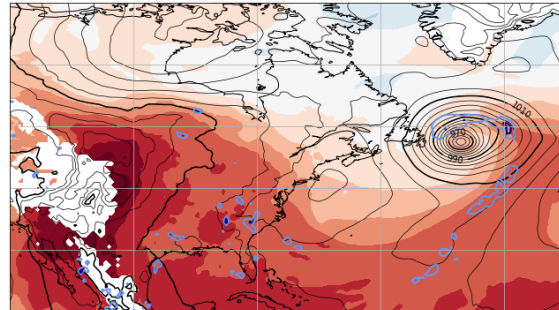
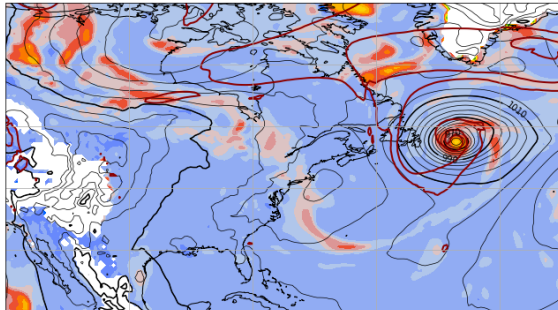
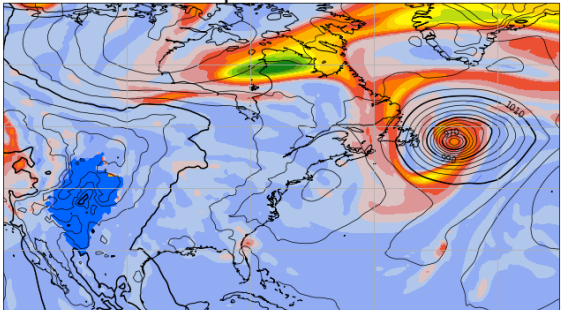
18 UTC on 10 September 1978



60°N
50°N
40°N
30°N

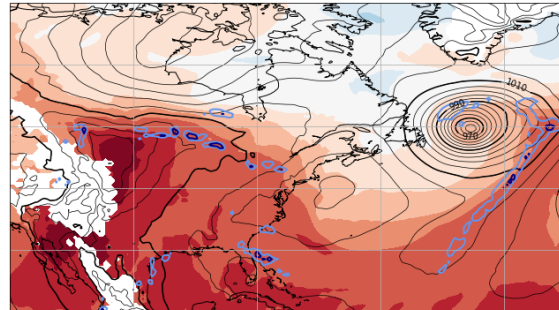
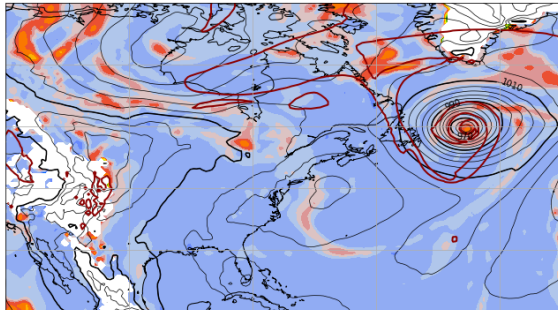
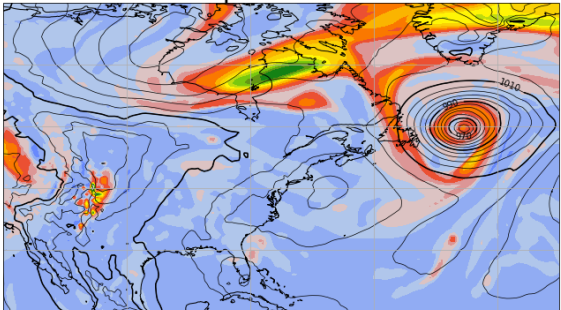


00 UTC on 11 September 1978



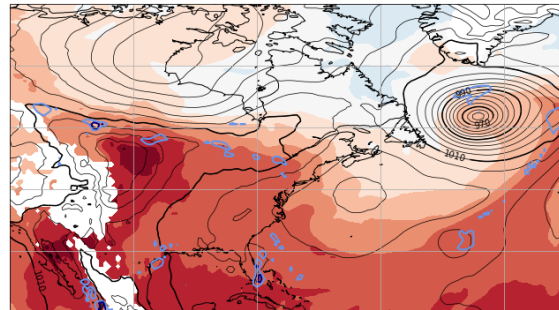
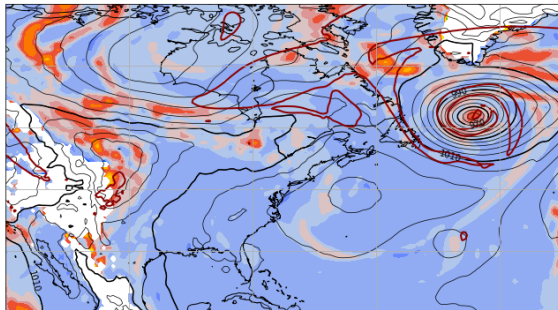
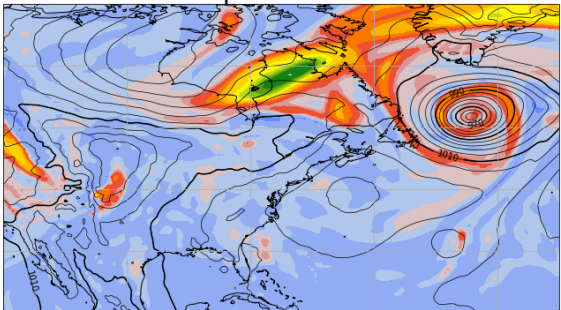
60°N
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40°N
30°N

06 UTC on 11 September 1978



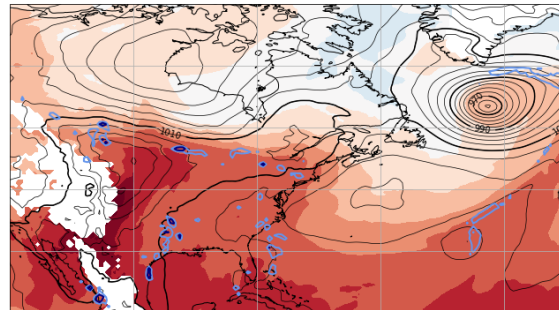
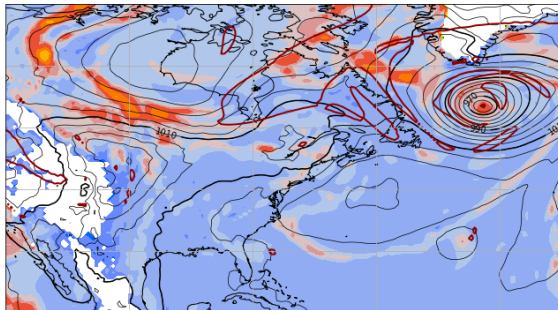
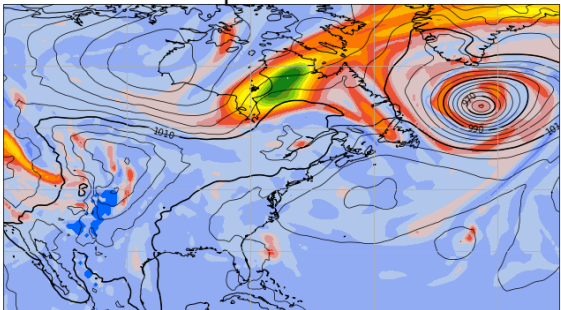
60°N
50°N
40°N
30°N

12 UTC on 11 September 1978



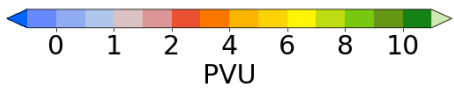
60°N
50°N
40°N
30°N

18 UTC on 11 September 1978

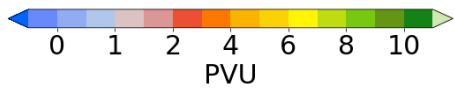


60°N
50°N
40°N
30°N

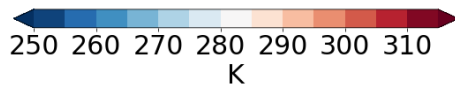
100°W 80°W 60°W 40°W



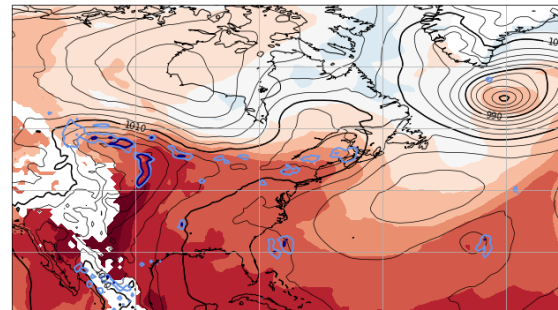
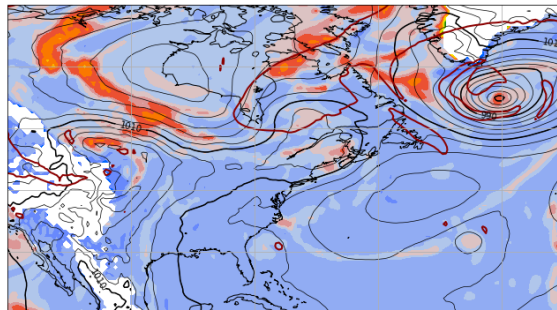
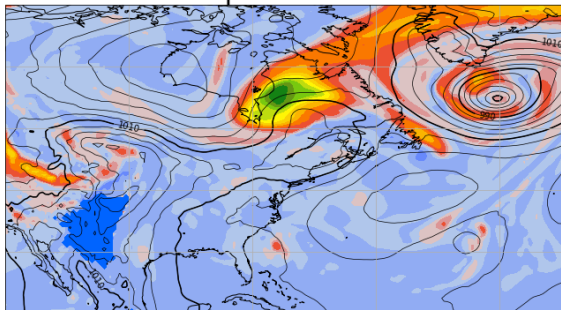
100°W 80°W 60°W 40°W



100°W 80°W 60°W 40°W

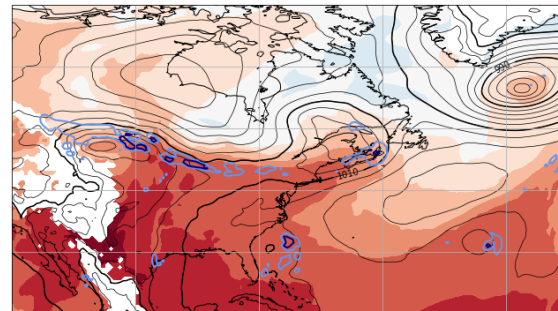
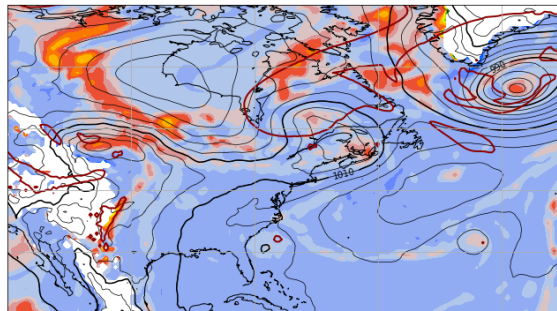
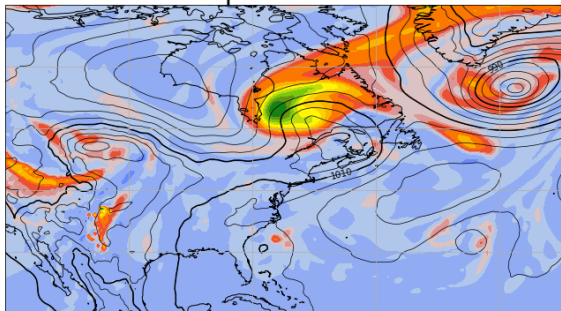


00 UTC on 12 September 1978



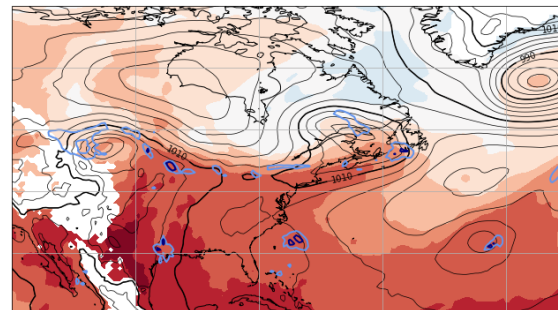
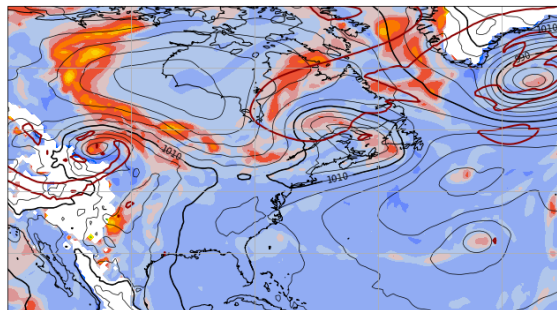
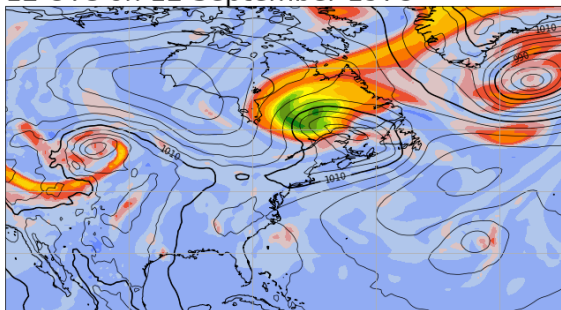
60°N
50°N
40°N
30°N

06 UTC on 12 September 1978



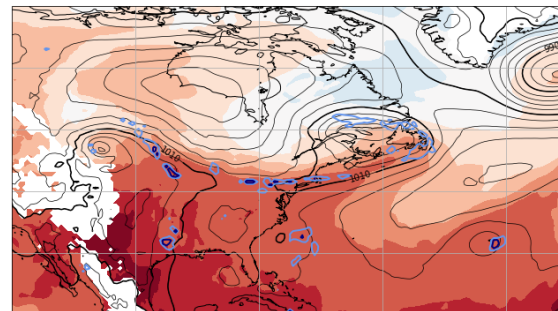
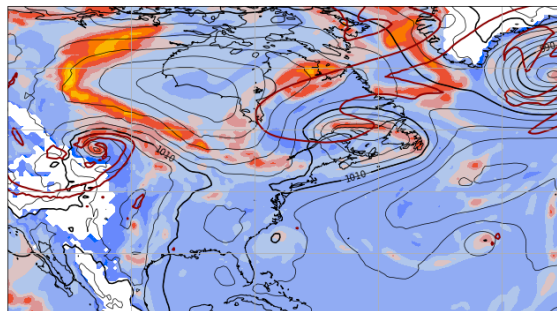
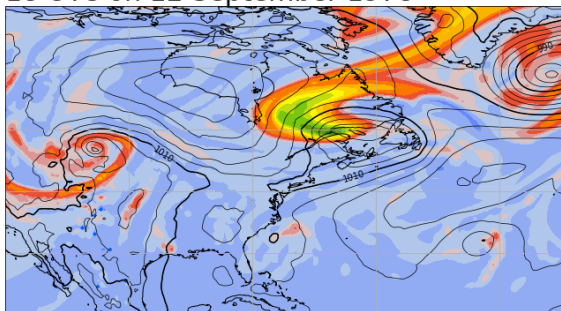
60°N
50°N
40°N
30°N

12 UTC on 12 September 1978

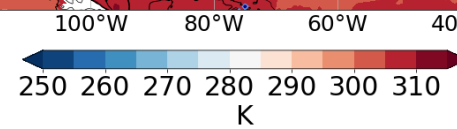
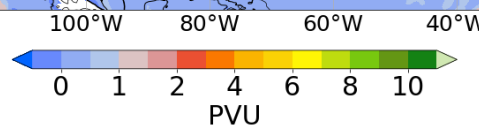
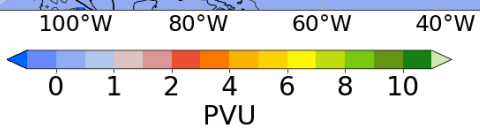


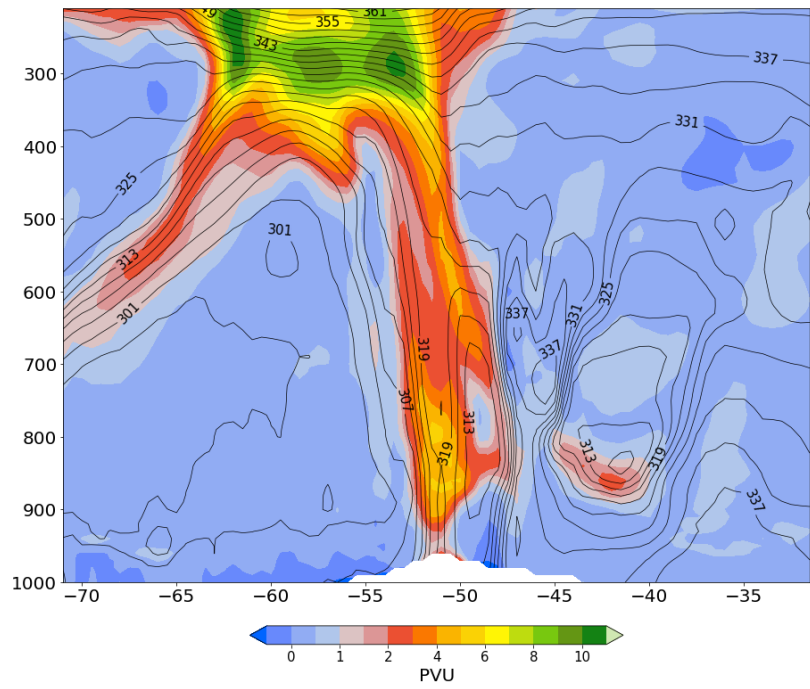
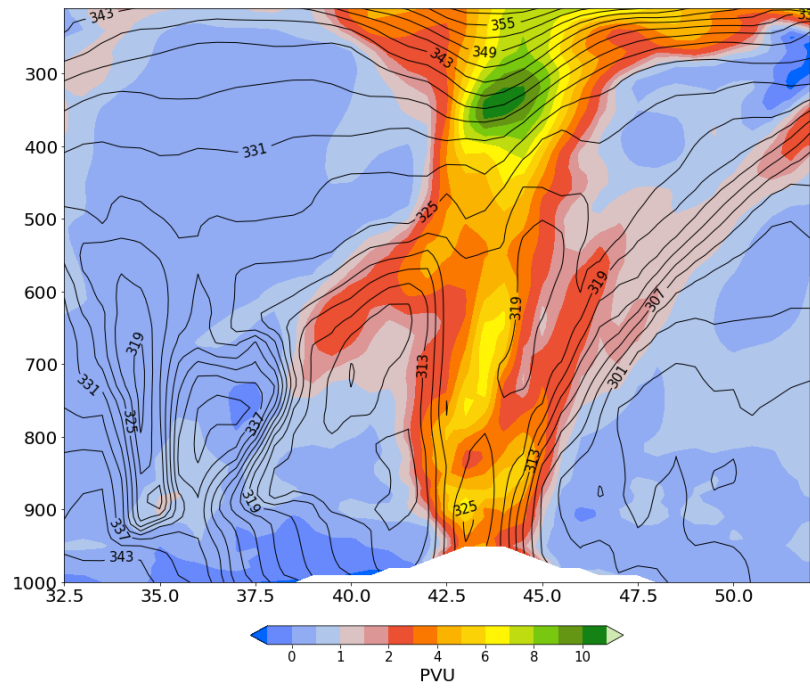
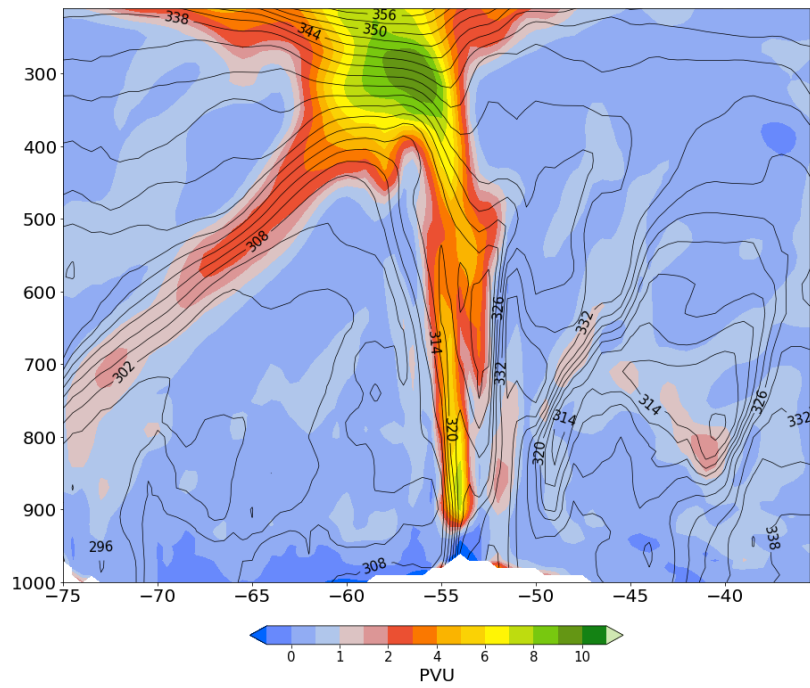
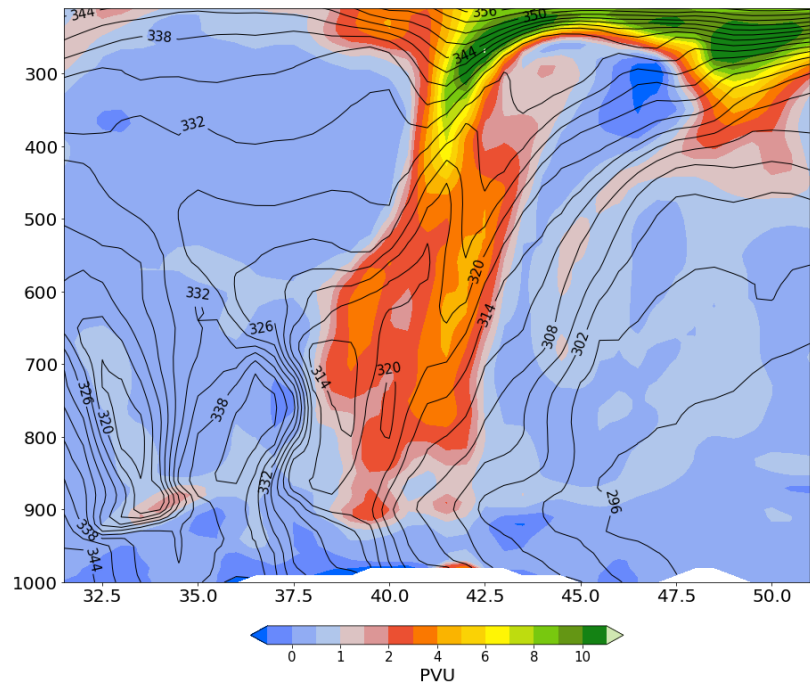
60°N
50°N
40°N
30°N

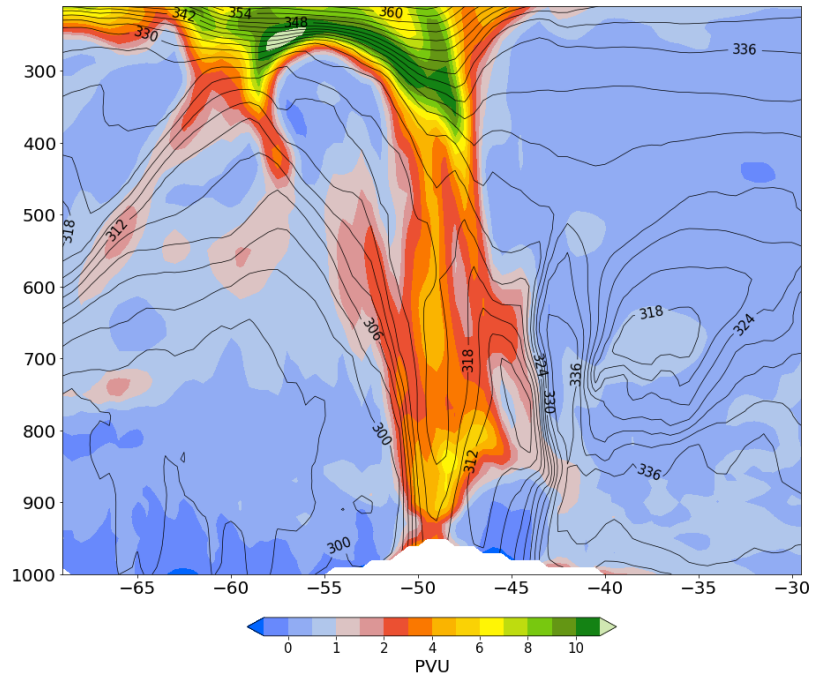
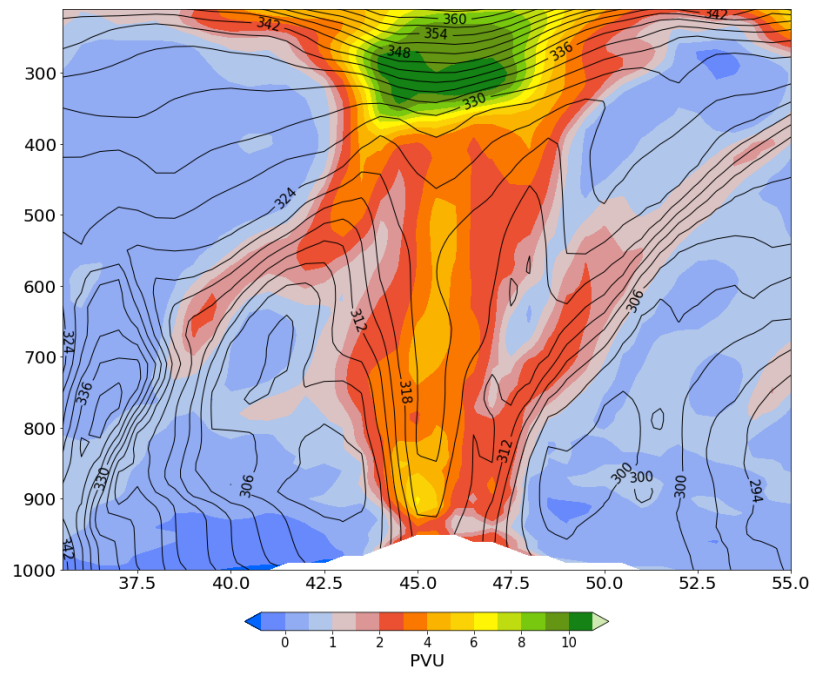
18 UTC on 12 September 1978



60°N
50°N
40°N
30°N







President's Day cyclone

Horizontal maps from 00 UTC on 17 February – 18 UTC on 22 February 1979

Vertical cross sections from 12 UTC on 19 February – 18 UTC on 20 February 1979

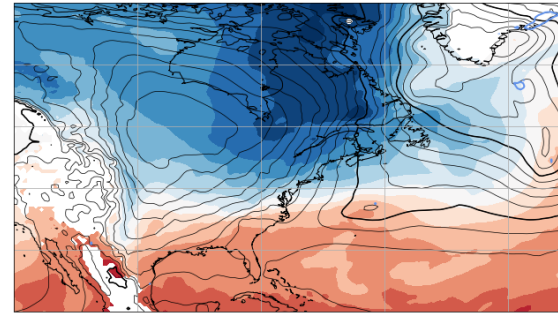
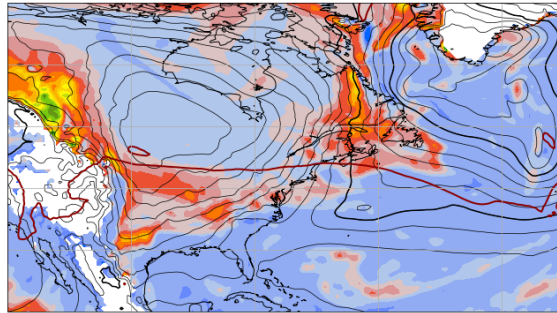
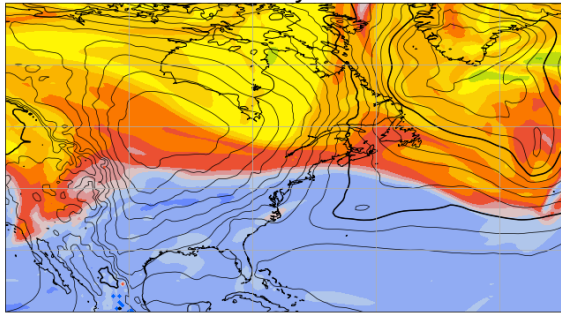
meridional cross sections (S to N)

date	cyclone center	cross sections		minimum MSLP
		from	to	
19790219_12	75°W / 36°N	75°W / 26°N	75°W / 46°N	1010 hPa
19790219_18	74°W / 37.5°N	74°W / 27.5°N	74°W / 47.5°N	994 hPa
19790220_00	69°W / 37.5°N	69°W / 27.5°N	69°W / 47.5°N	994 hPa
19790220_06	65°W / 37°N	65°W / 27°N	65°W / 47°N	994 hPa
19790220_12	59°W / 37°N	59°W / 27°N	59°W / 47°N	990 hPa
19790220_18	55°W / 38°N	55°W / 28°N	55°W / 48°N	990 hPa

zonal cross sections (W to E)

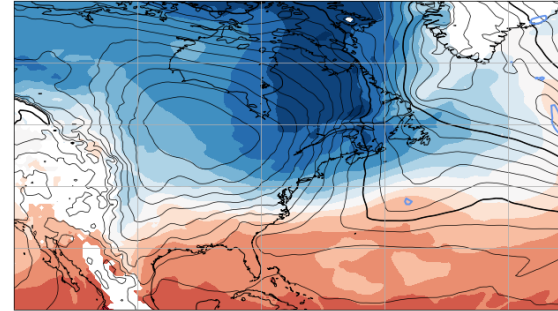
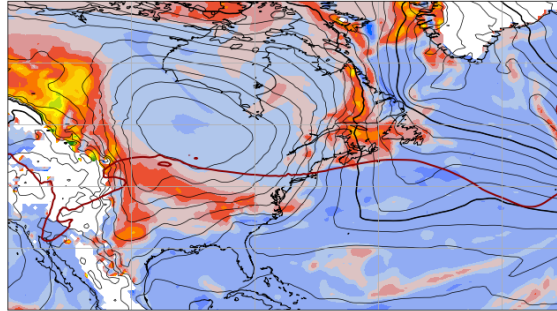
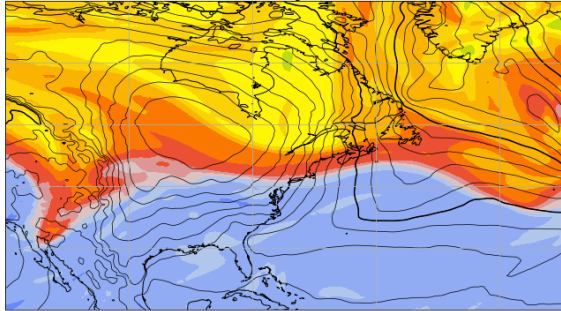
date	cyclone center	cross sections		minimum MSLP
		from	to	
19790219_12	75°W / 36°N	95°W / 36°N	55°W / 36°N	1010 hPa
19790219_18	74°W / 37.5°N	94°W / 37.5°N	54°W / 37.5°N	994 hPa
19790220_00	69°W / 37.5°N	89°W / 37.5°N	49°W / 37.5°N	994 hPa
19790220_06	65°W / 37°N	85°W / 37°N	45°W / 37°N	994 hPa
19790220_12	59°W / 37°N	79°W / 37°N	39°W / 37°N	990 hPa
19790220_18	55°W / 38°N	75°W / 38°N	35°W / 38°N	990 hPa

00 UTC on 17 February 1979



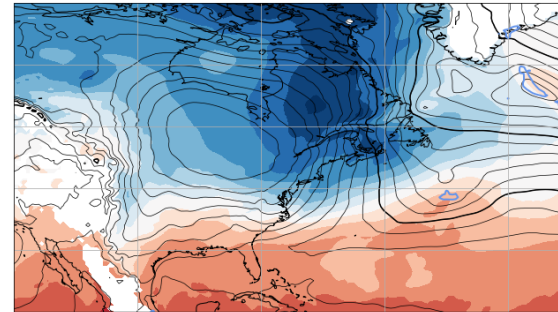
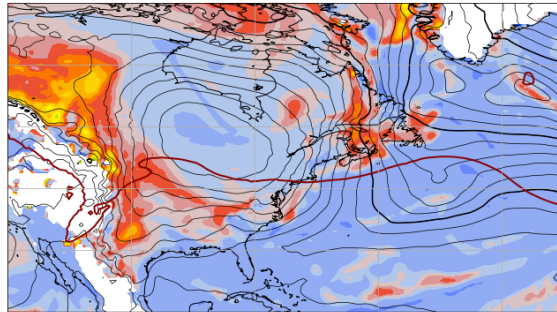
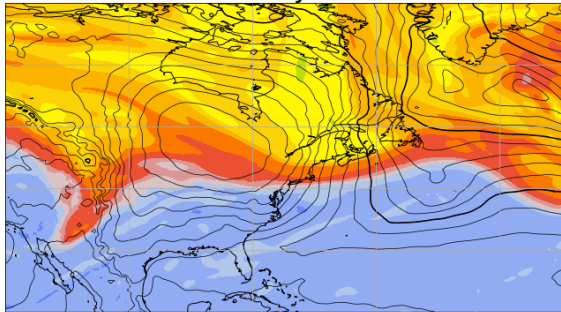
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40°N
30°N

06 UTC on 17 February 1979



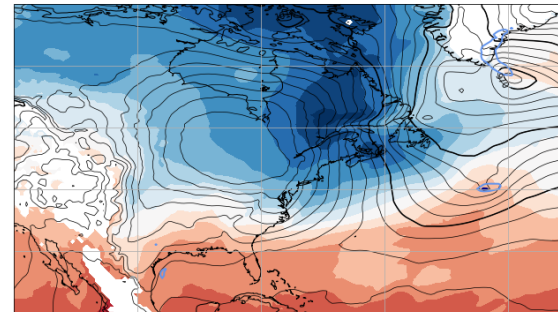
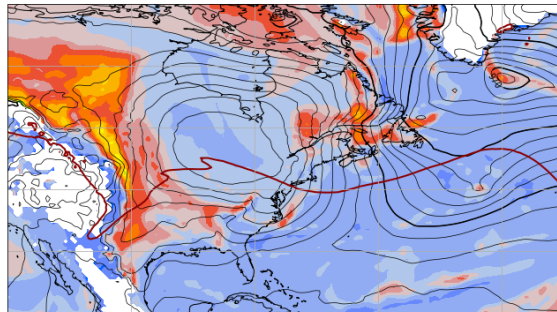
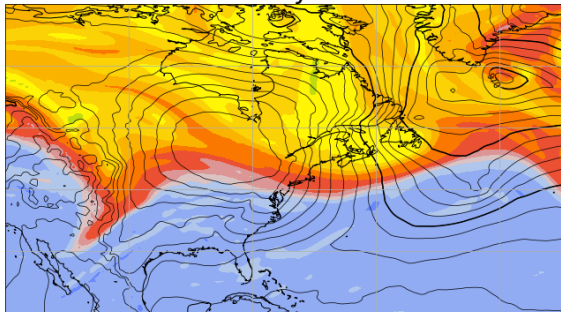
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30°N

12 UTC on 17 February 1979



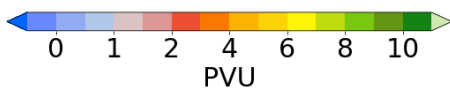
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18 UTC on 17 February 1979

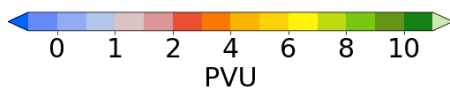


60°N
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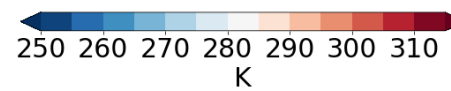
100°W 80°W 60°W 40°W



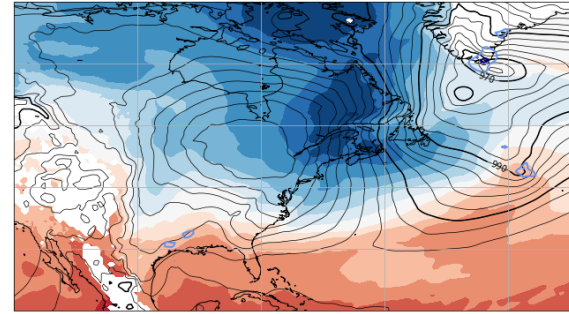
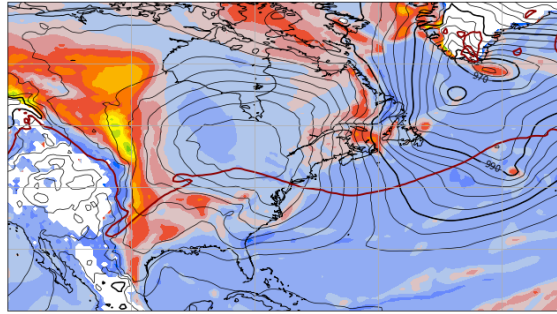
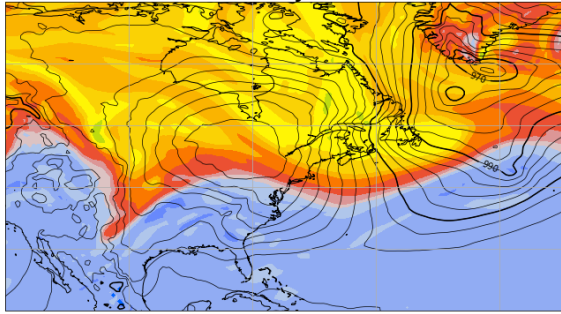
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100°W 80°W 60°W 40°W

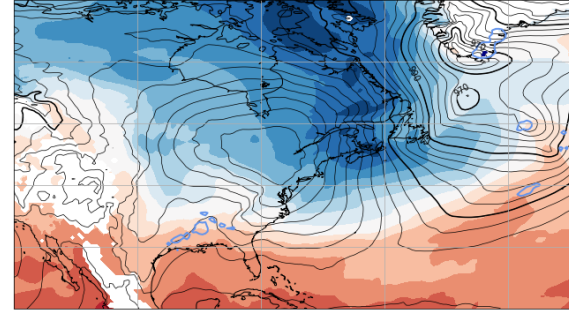
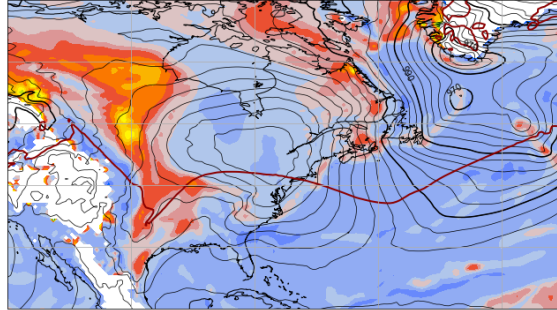
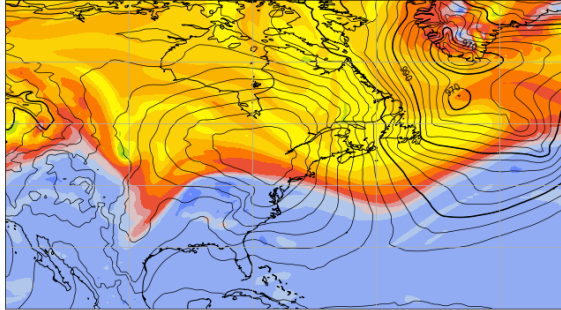


00 UTC on 18 February 1979



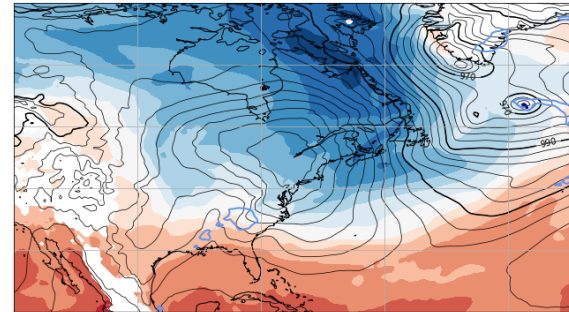
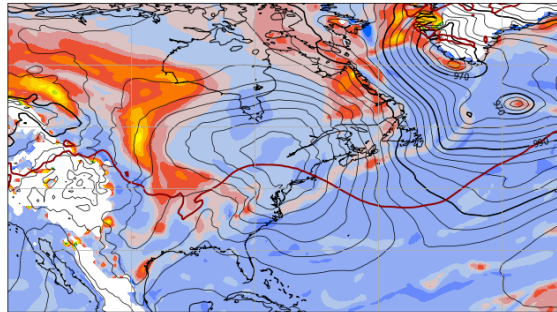
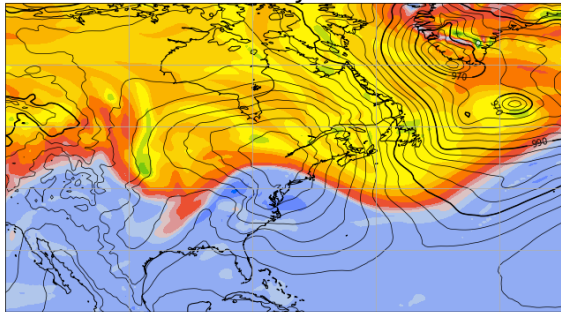
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30°N

06 UTC on 18 February 1979



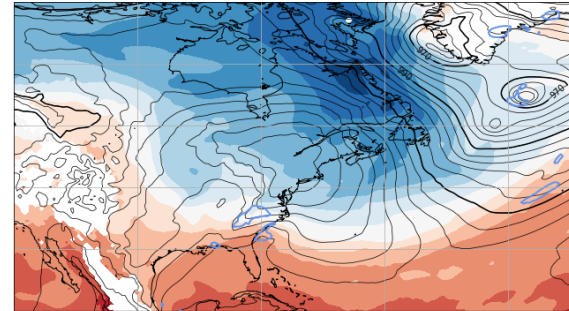
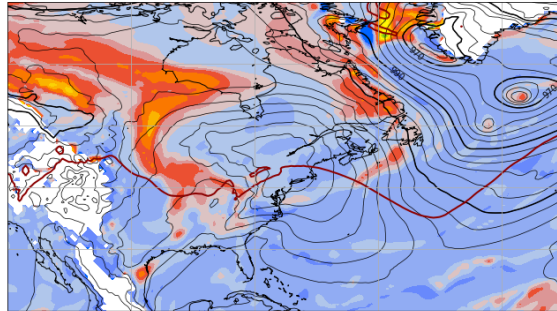
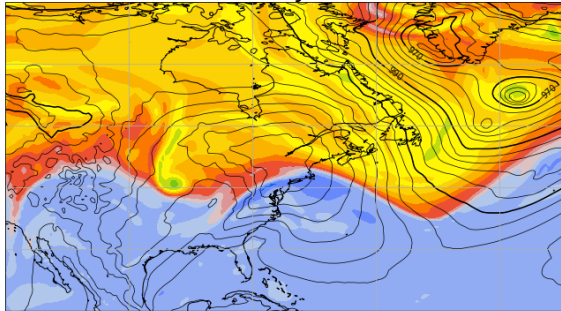
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12 UTC on 18 February 1979



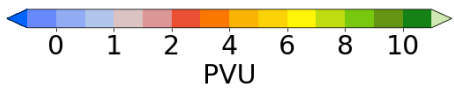
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18 UTC on 18 February 1979

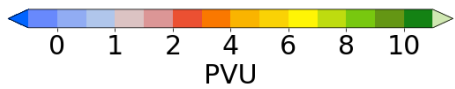


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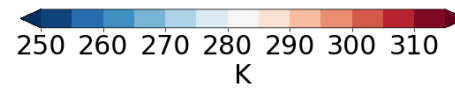
100°W 80°W 60°W 40°W



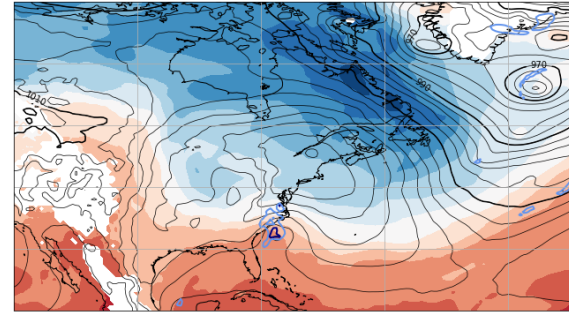
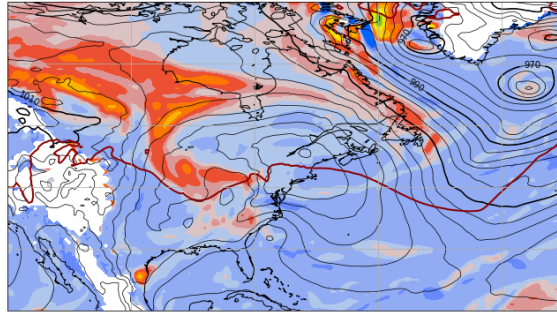
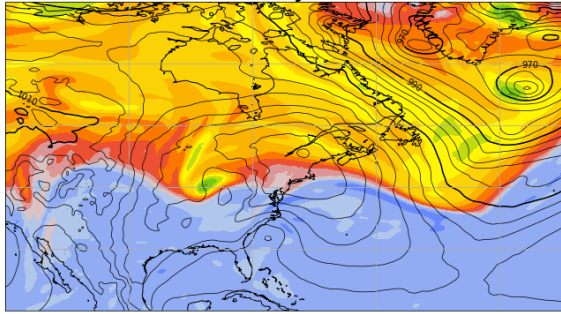
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100°W 80°W 60°W 40°W

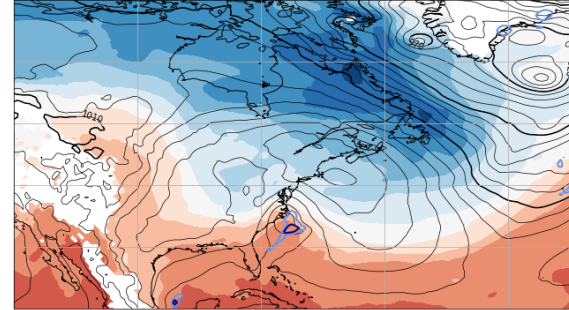
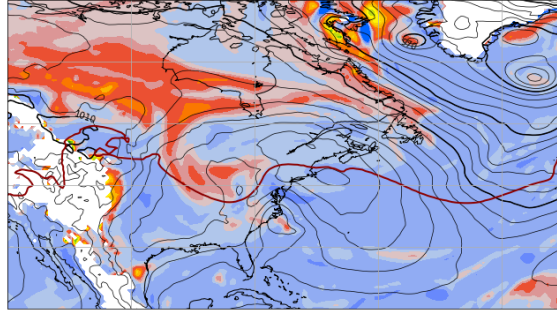
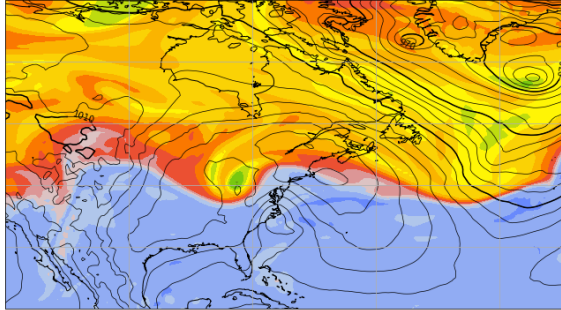


00 UTC on 19 February 1979



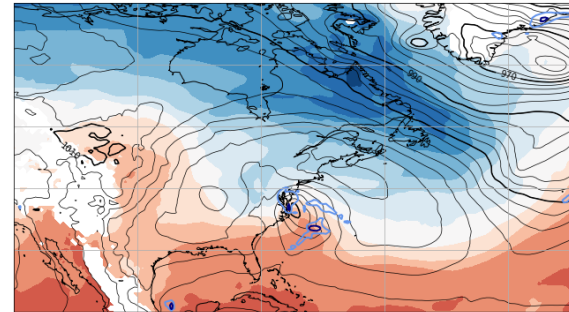
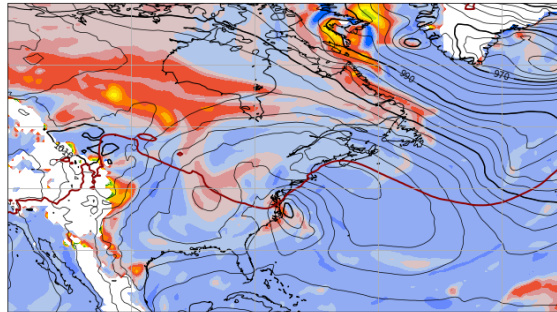
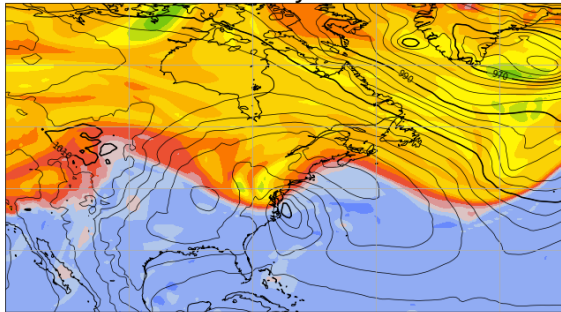
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40°N
30°N

06 UTC on 19 February 1979



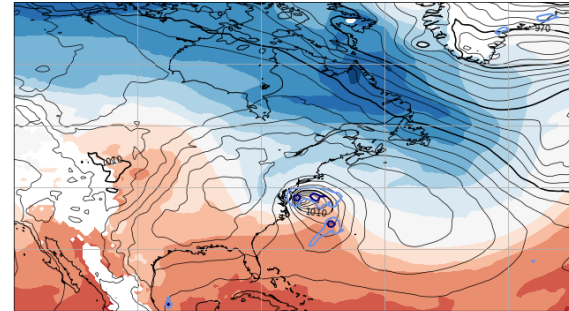
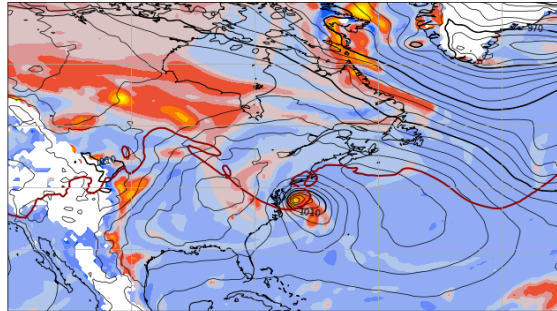
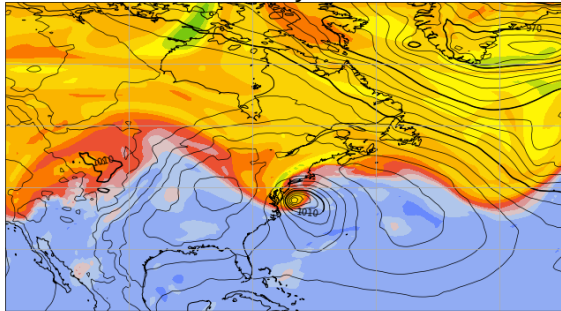
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12 UTC on 19 February 1979

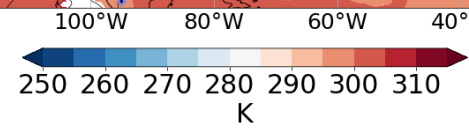
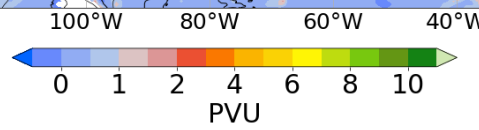
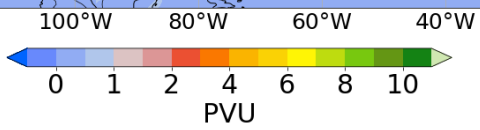


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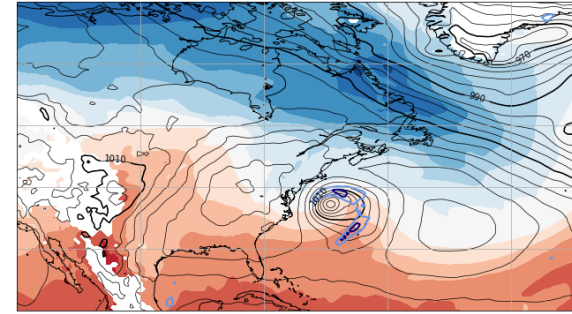
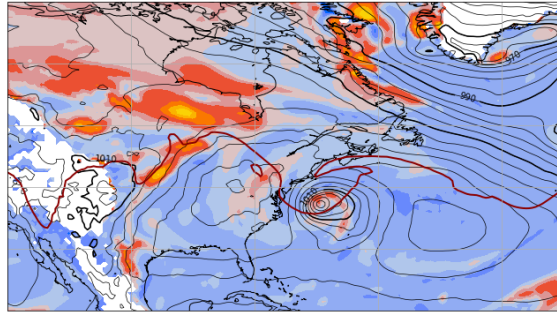
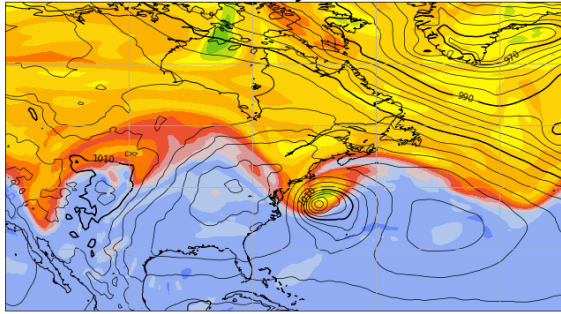
18 UTC on 19 February 1979



60°N
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30°N

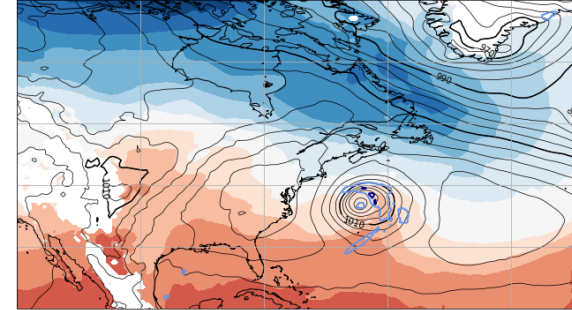
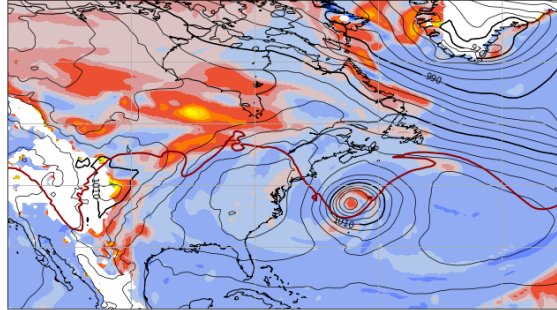
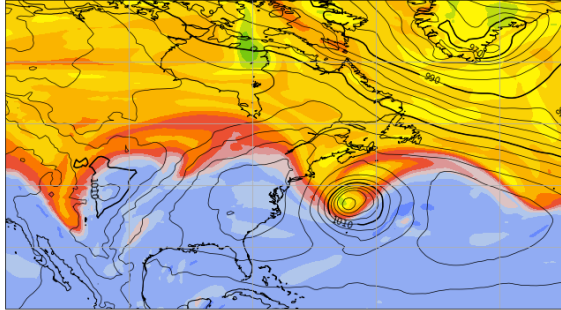


00 UTC on 20 February 1979



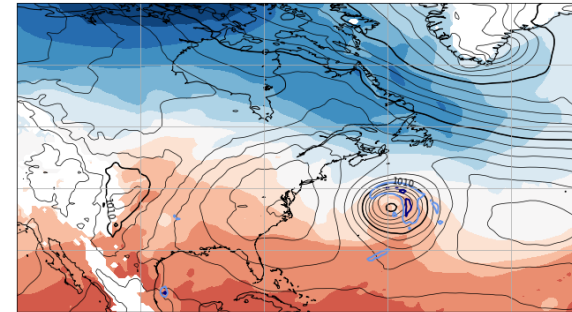
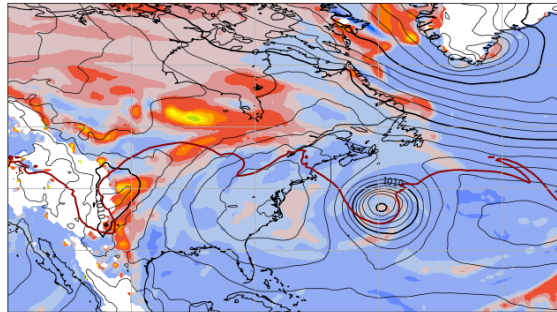
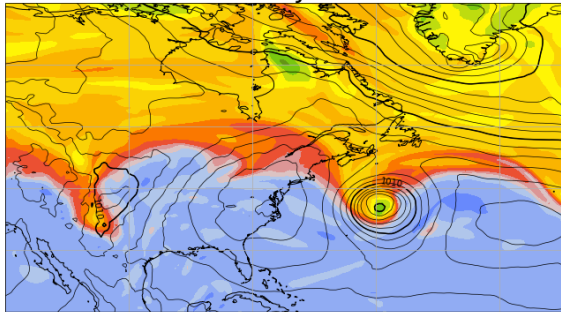
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40°N
30°N

06 UTC on 20 February 1979



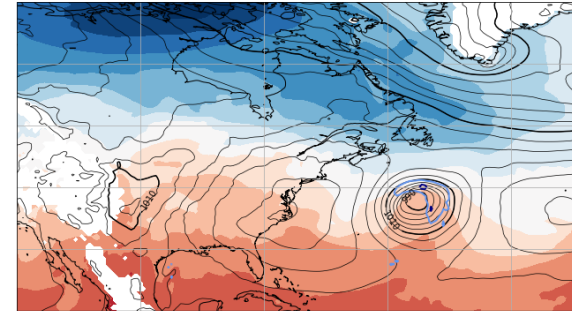
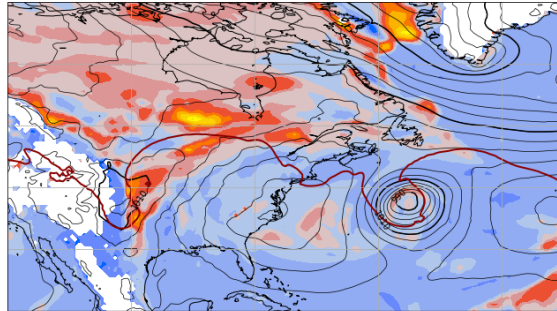
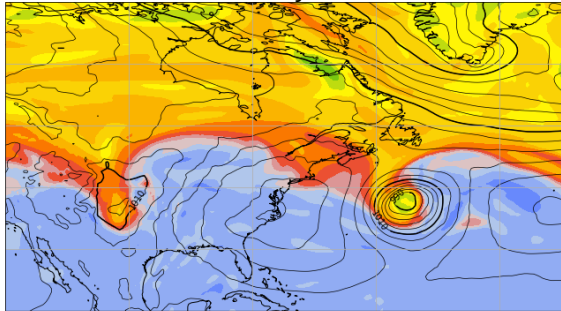
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30°N

12 UTC on 20 February 1979



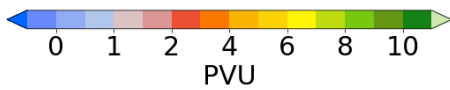
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18 UTC on 20 February 1979

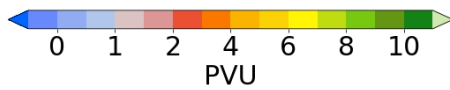


60°N
50°N
40°N
30°N

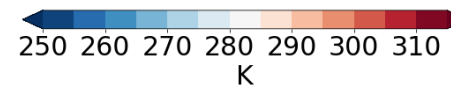
100°W 80°W 60°W 40°W



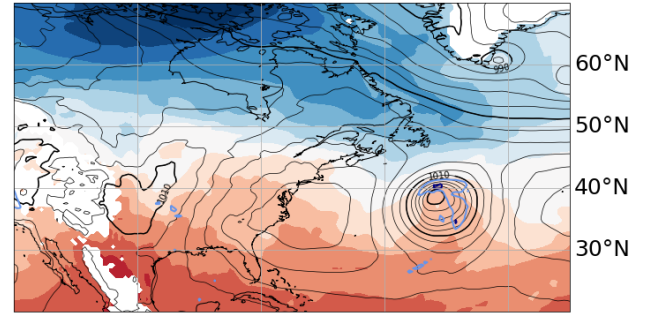
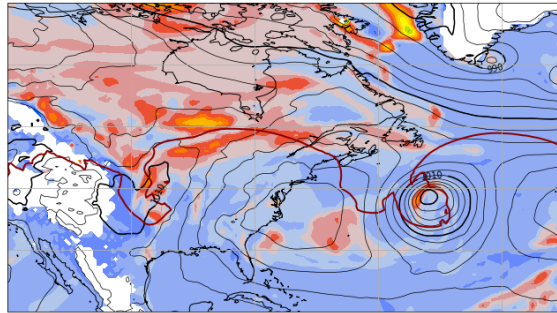
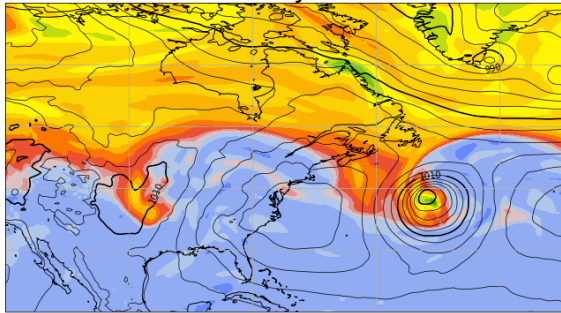
100°W 80°W 60°W 40°W



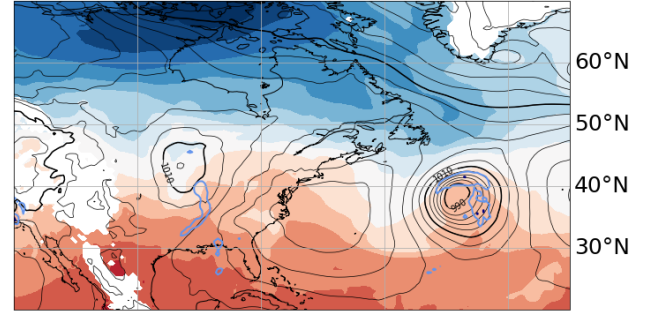
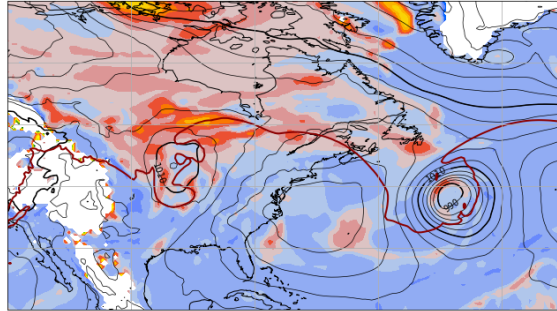
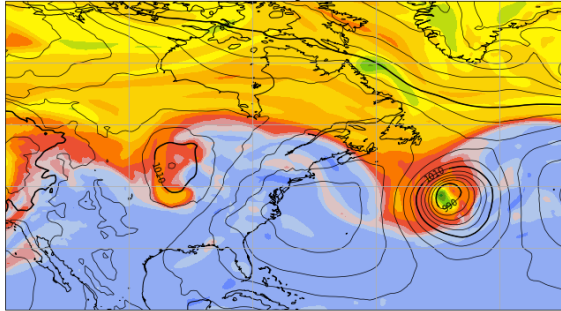
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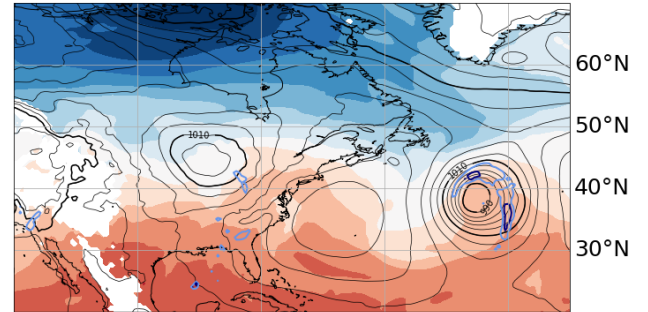
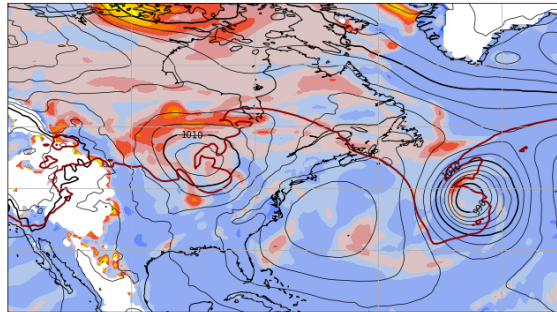
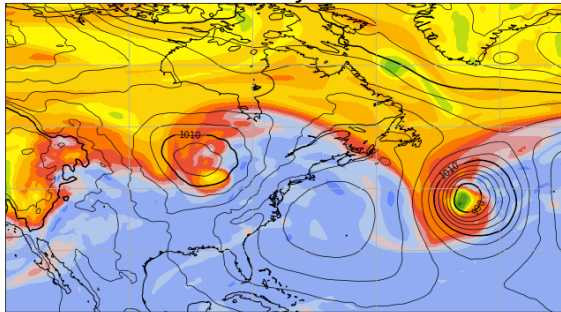
00 UTC on 21 February 1979



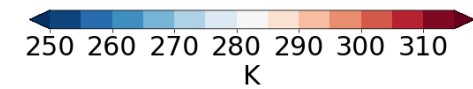
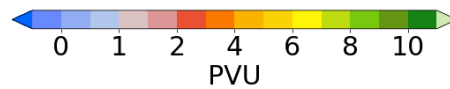
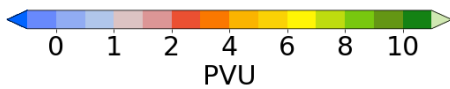
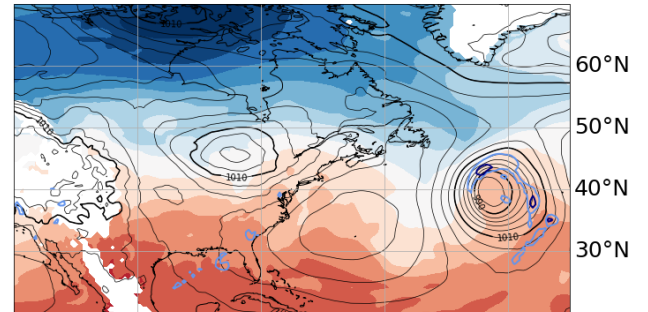
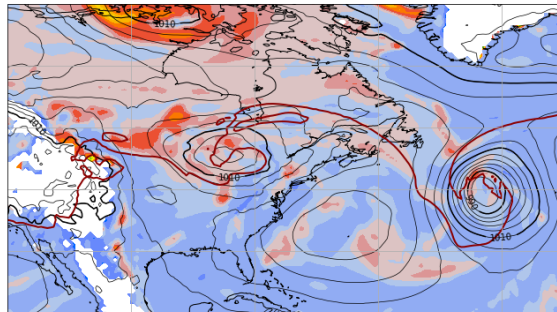
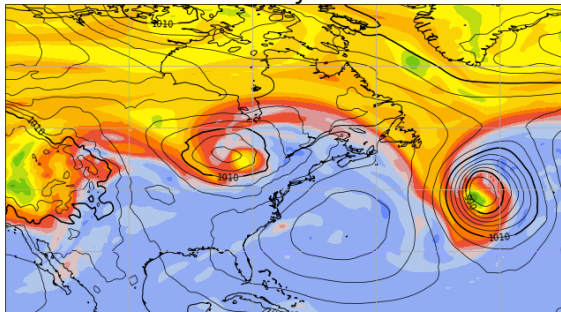
06 UTC on 21 February 1979



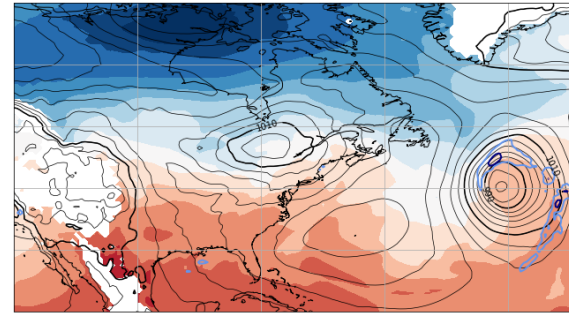
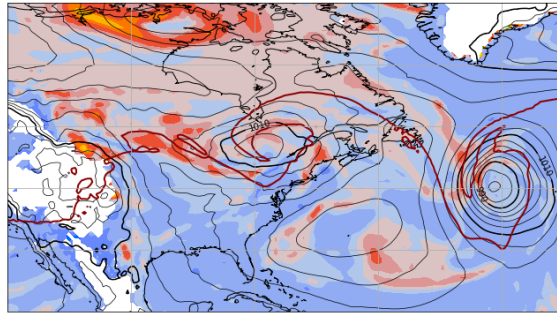
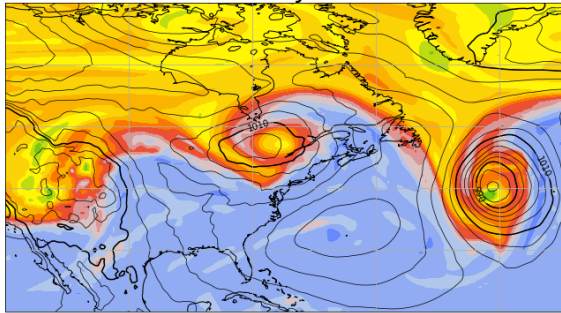
12 UTC on 21 February 1979



18 UTC on 21 February 1979

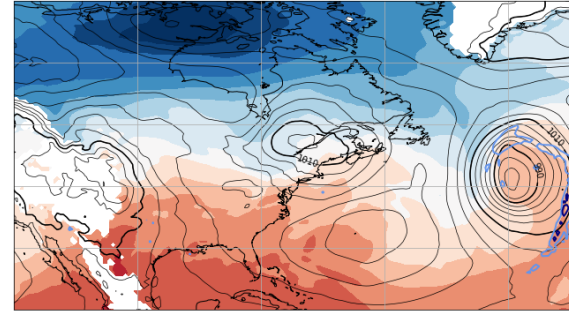
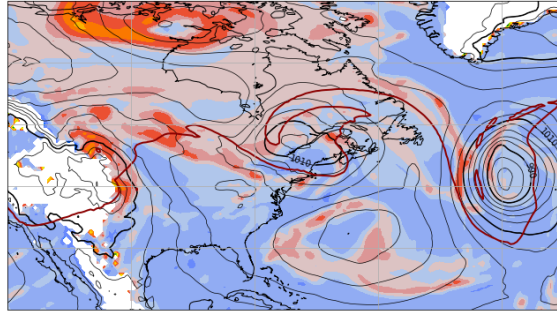
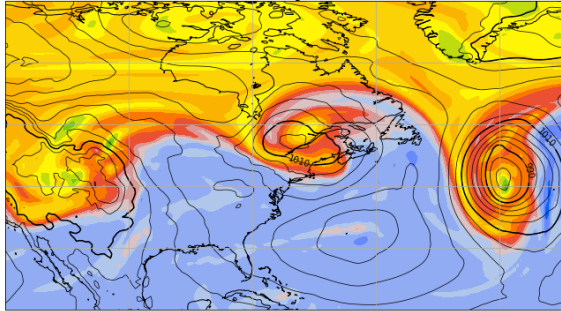


00 UTC on 22 February 1979



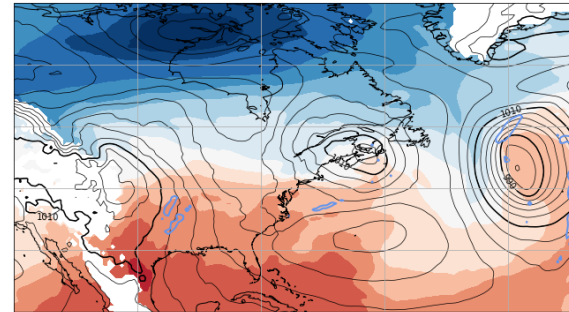
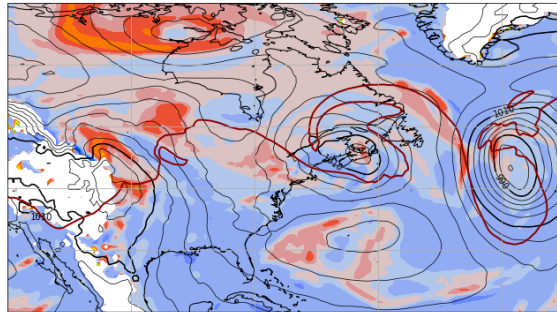
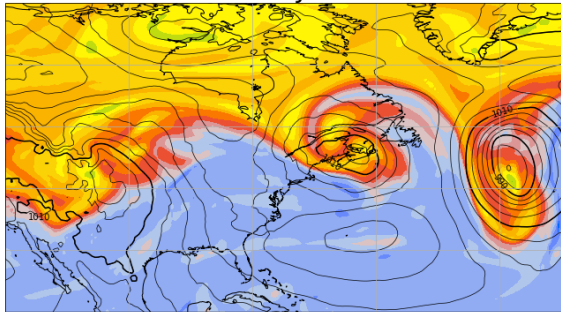
60°N
50°N
40°N
30°N

06 UTC on 22 February 1979



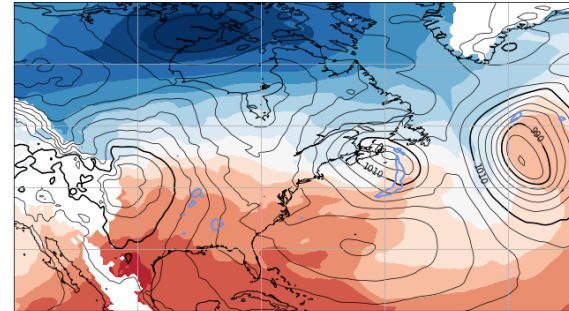
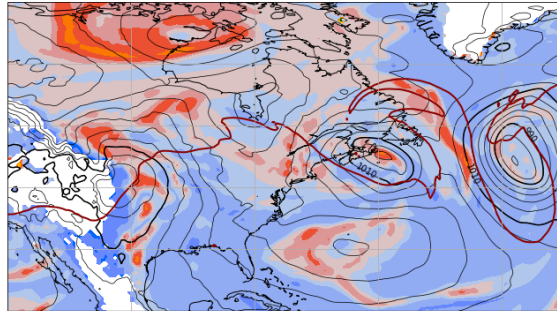
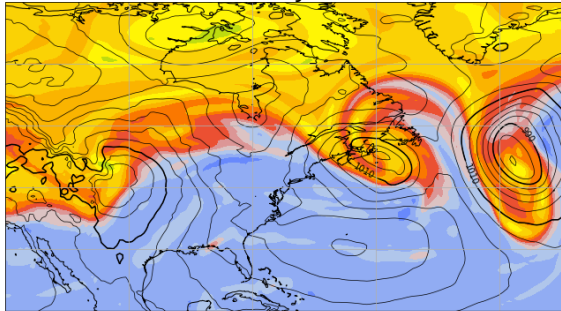
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50°N
40°N
30°N

12 UTC on 22 February 1979



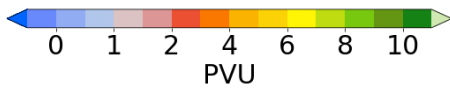
60°N
50°N
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18 UTC on 22 February 1979

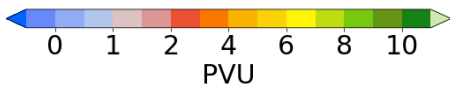


60°N
50°N
40°N
30°N

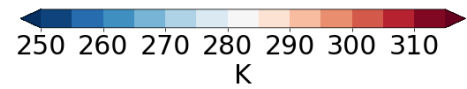
100°W 80°W 60°W 40°W



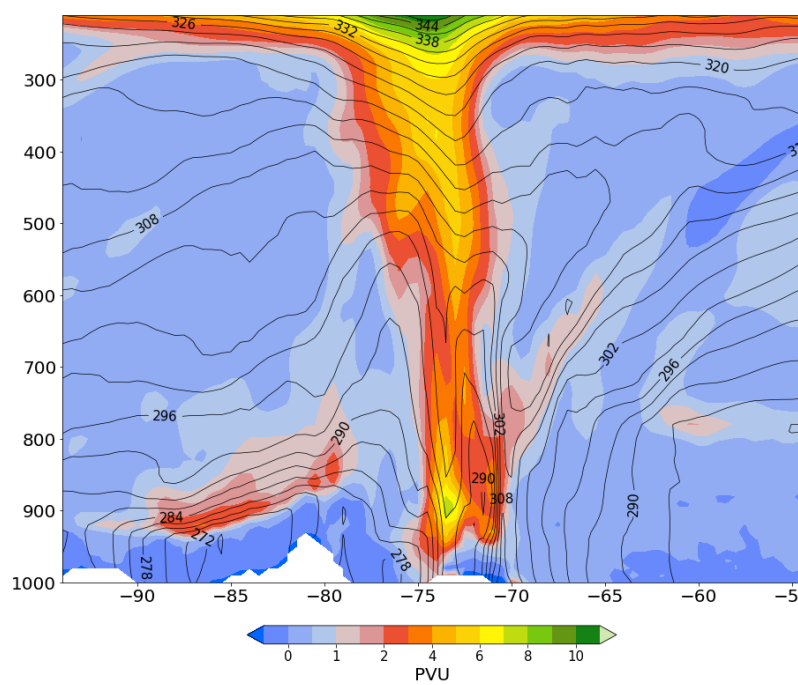
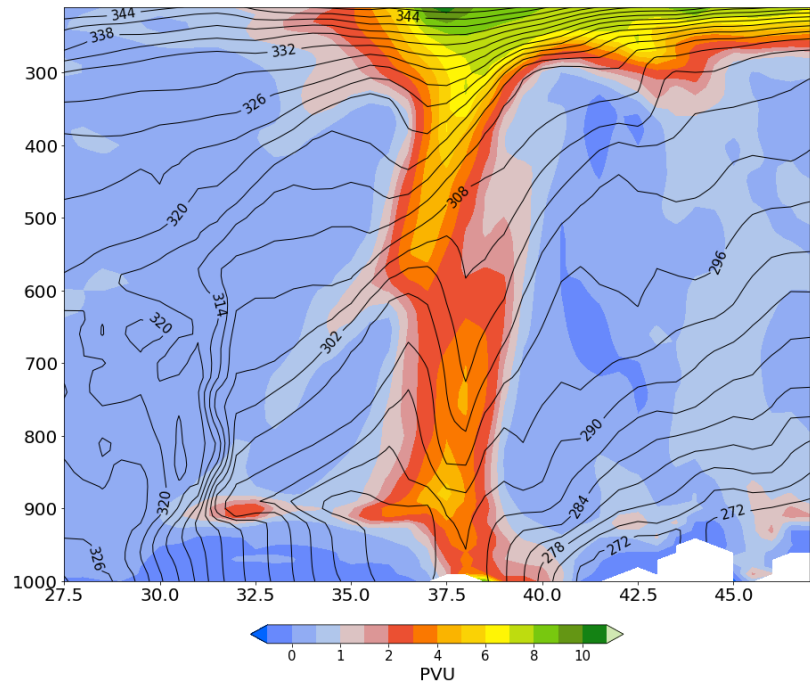
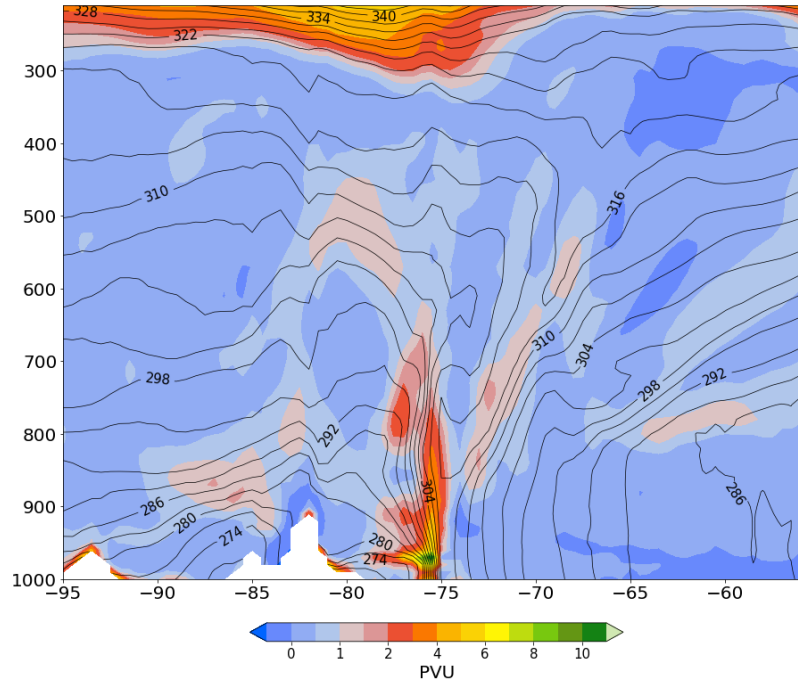
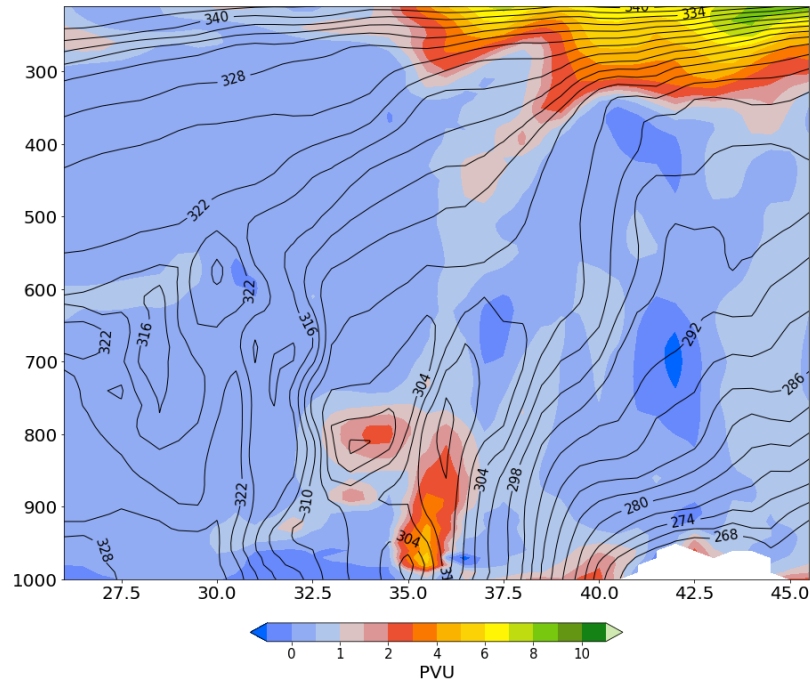
100°W 80°W 60°W 40°W

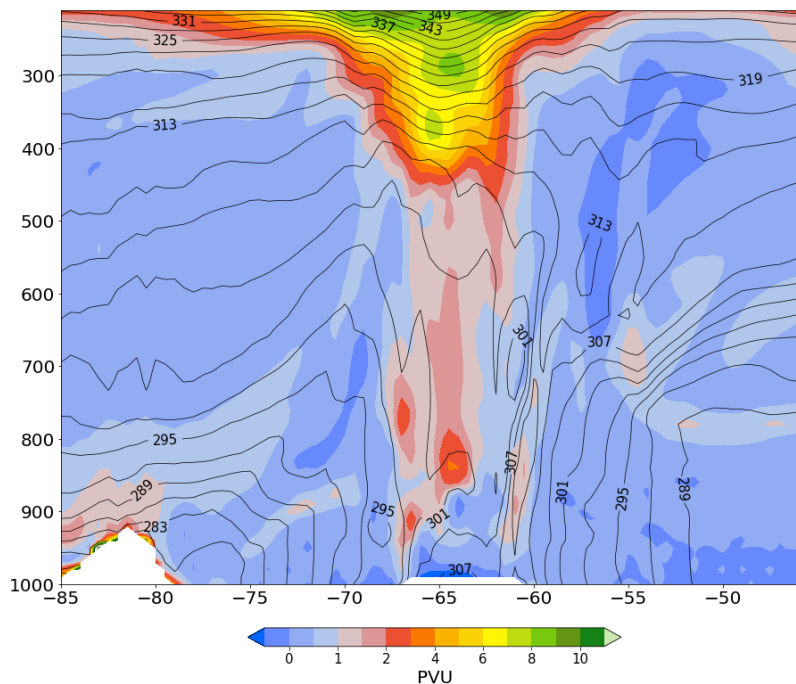
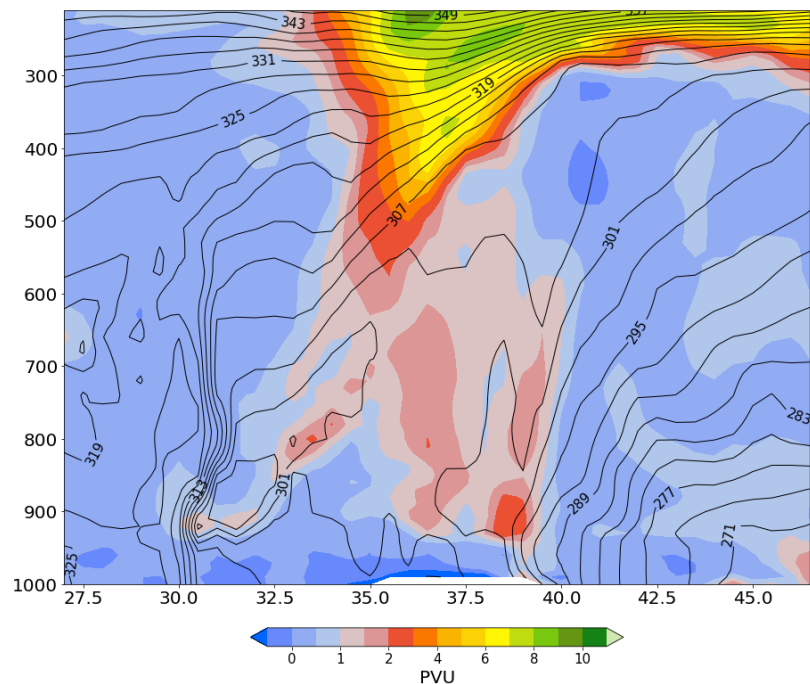
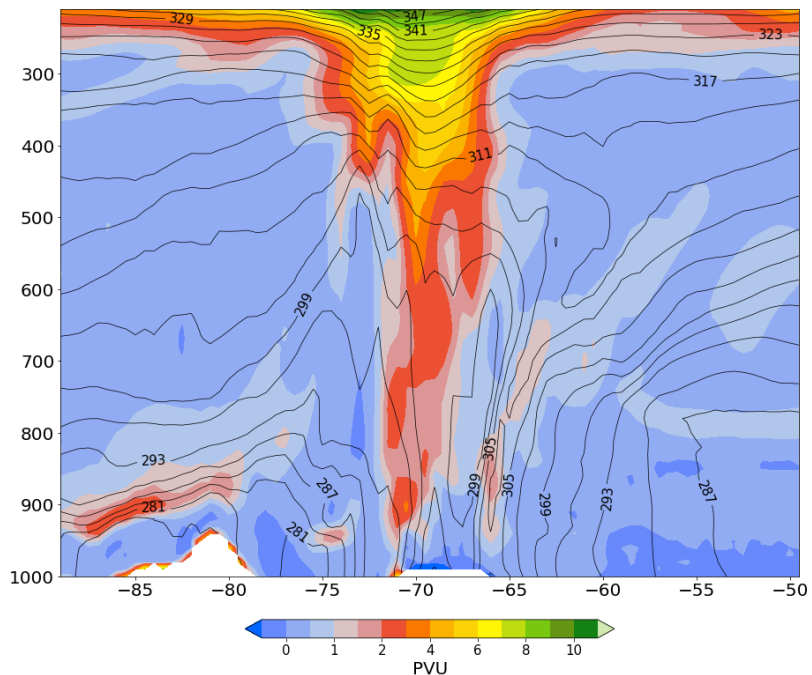
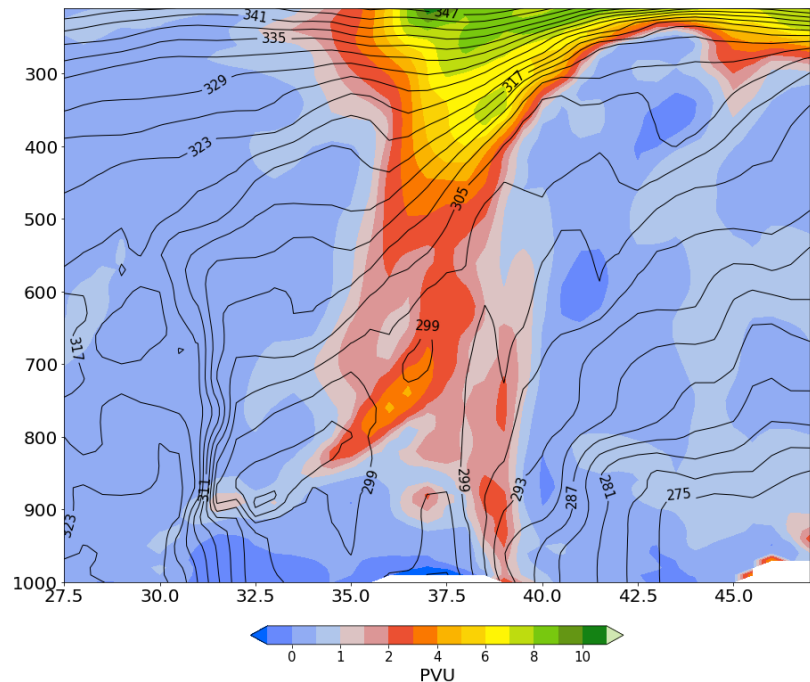


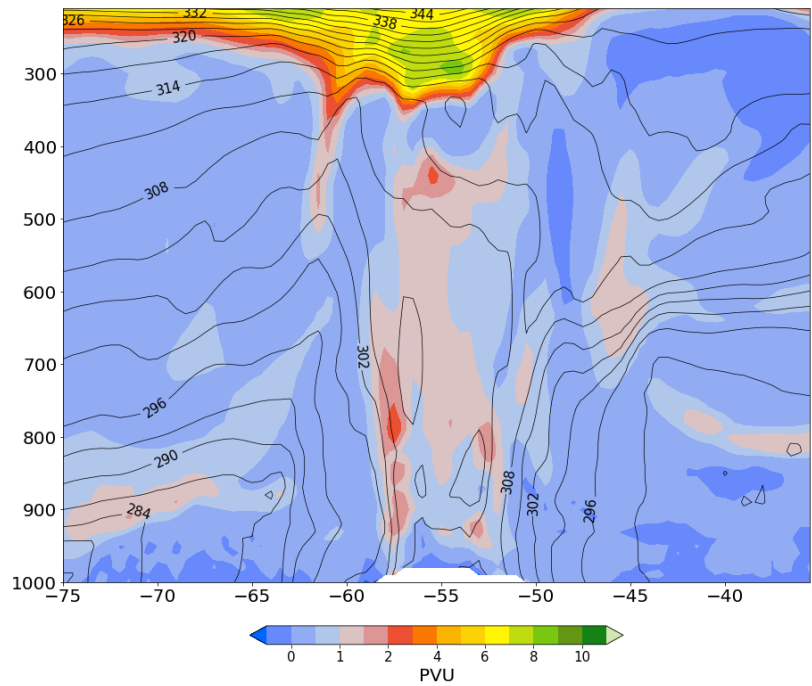
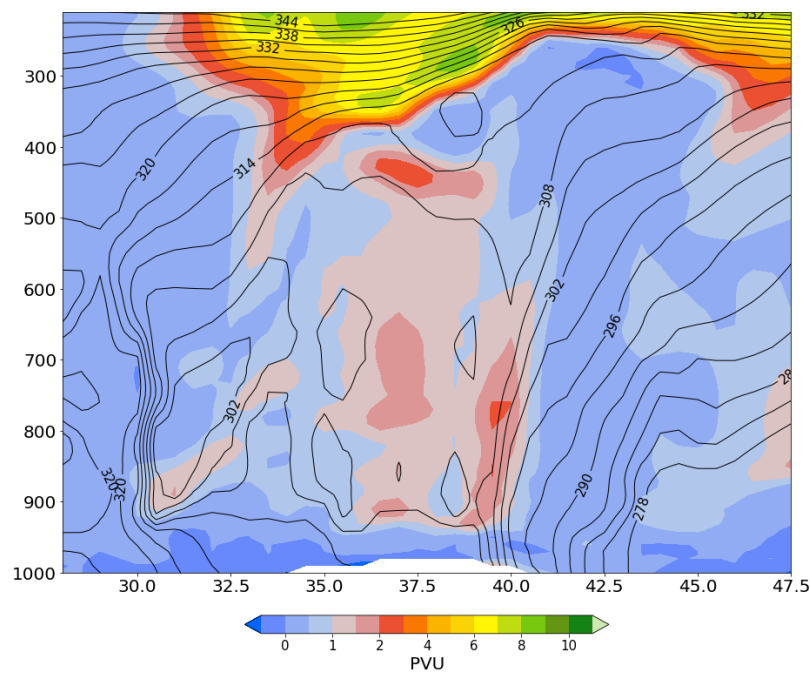
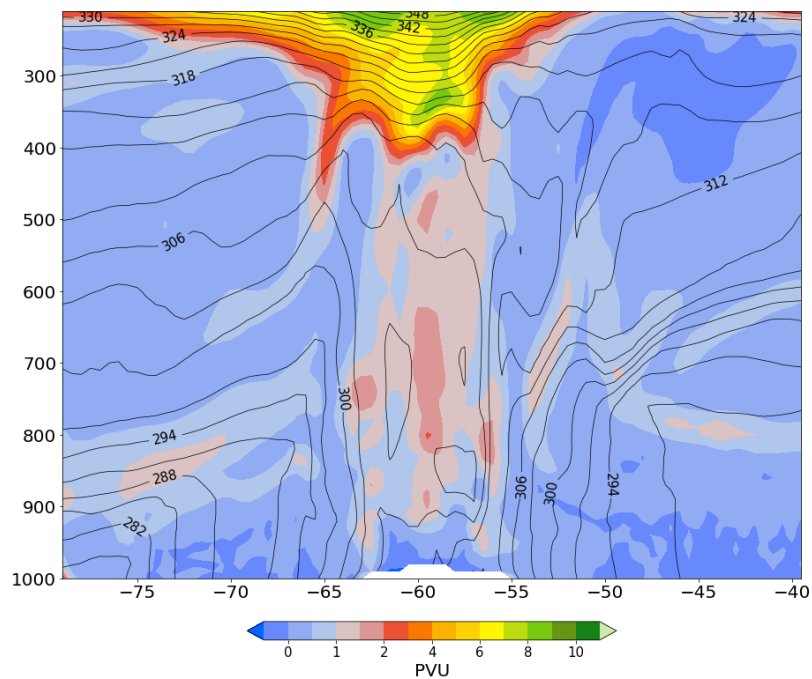
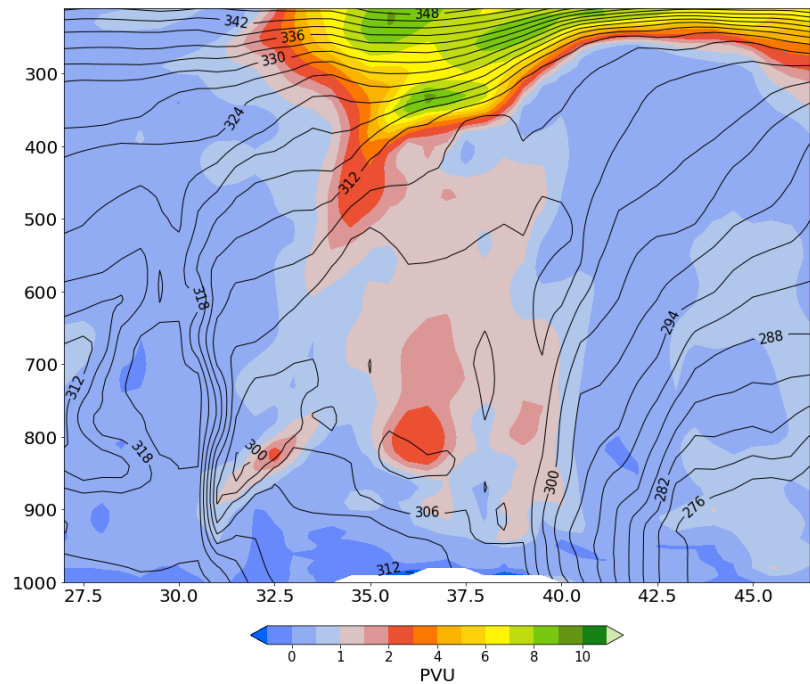
100°W 80°W 60°W 40°W



President's Day Cyclone 12 UTC 19 Feb to 18 UTC 20 Feb 1979







U.K. Great October storm

Horizontal maps from 00 UTC on 13 October – 18 UTC on 18 October 1987

Vertical cross sections from 12 UTC on 15 October – 06 UTC on 16 October 1987

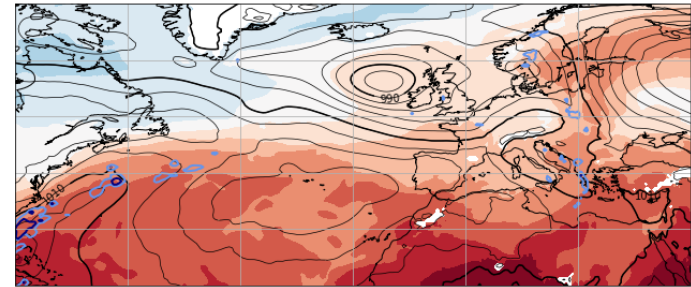
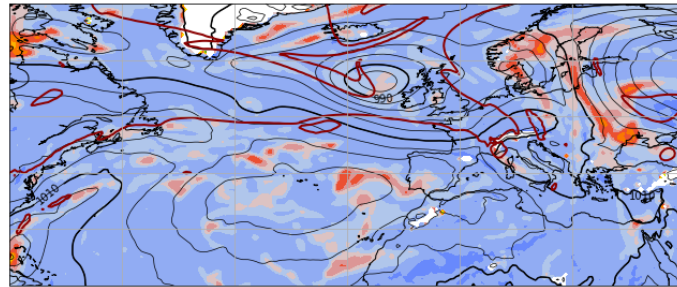
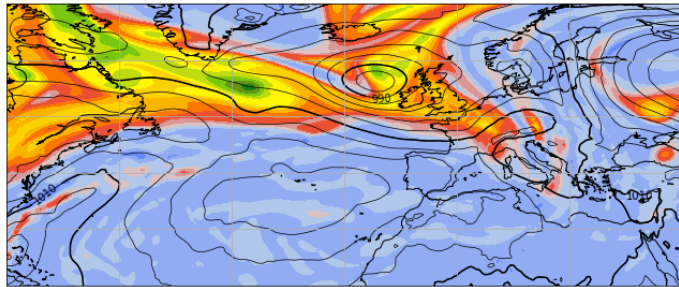
meridional cross sections (S to N)

date	cyclone center	cross sections		minimum MSLP
		from	to	
19871015_12	14°W / 44°N	14°W / 34°N	14°W / 54°N	970 hPa
19871015_18	9°W / 46°N	9°W / 36°N	9°W / 56°N	962 hPa
19871016_00	4°W / 49°N	4°W / 39°N	4°W / 59°N	958 hPa
19871016_06	0.5°W / 53°N	0.5°W / 43°N	0.5°W / 63°N	958 hPa

zonal cross sections (W to E)

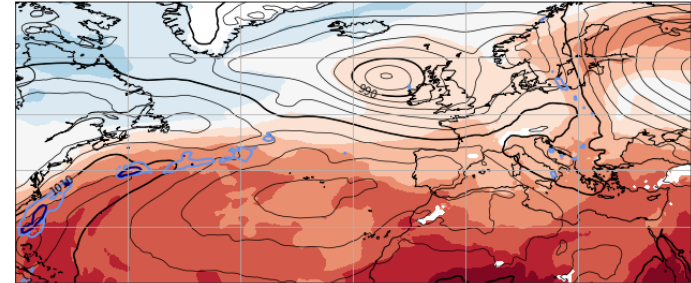
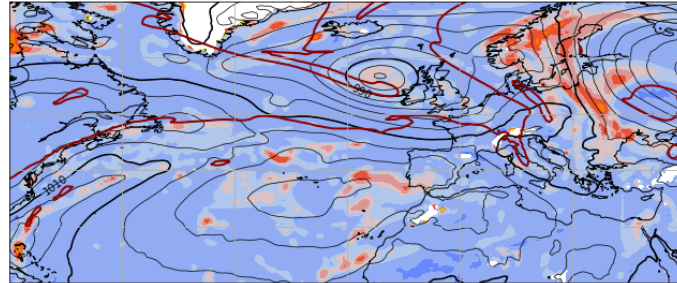
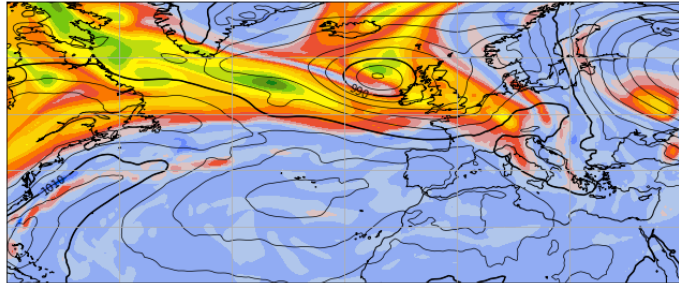
date	cyclone center	cross sections		minimum MSLP
		from	to	
19871015_12	14°W / 44°N	34°W / 44°N	6°E / 44°N	970 hPa
19871015_18	9°W / 46°N	29°W / 46°N	11°E / 46°N	962 hPa
19871016_00	4°W / 49°N	24°W / 49°N	16°E / 49°N	958 hPa
19871016_06	0.5°W / 53°N	20.5°W / 53°N	19.5°E / 53°N	958 hPa

00 UTC on 13 October 1987



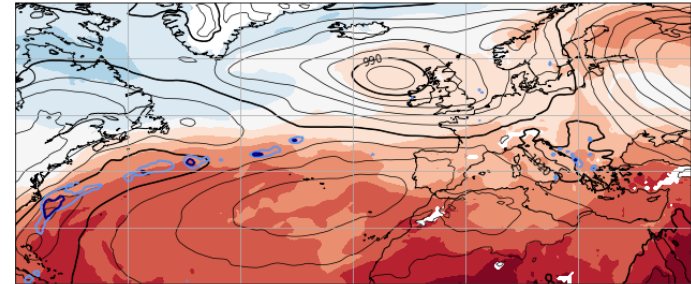
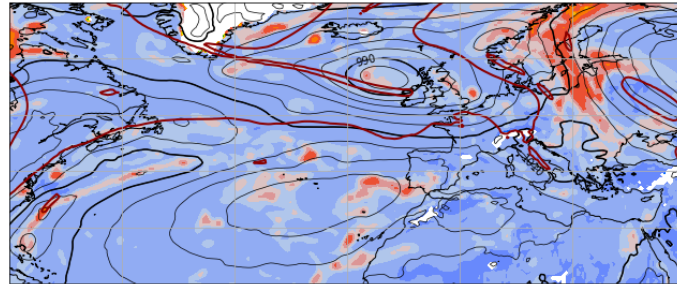
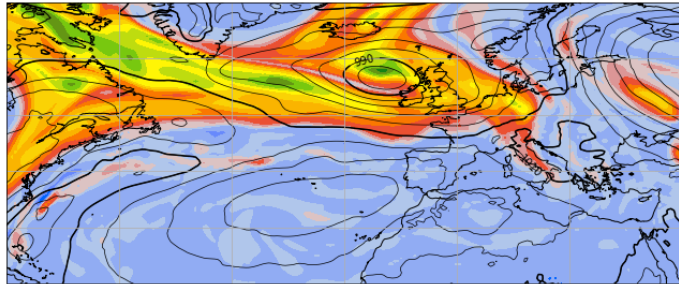
60°N
50°N
40°N
30°N

06 UTC on 13 October 1987



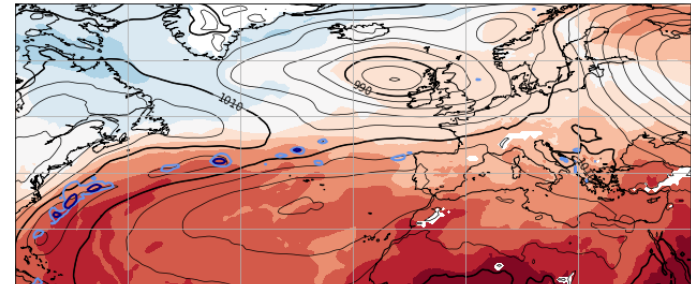
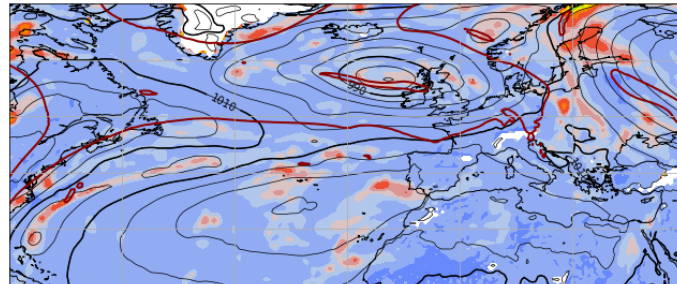
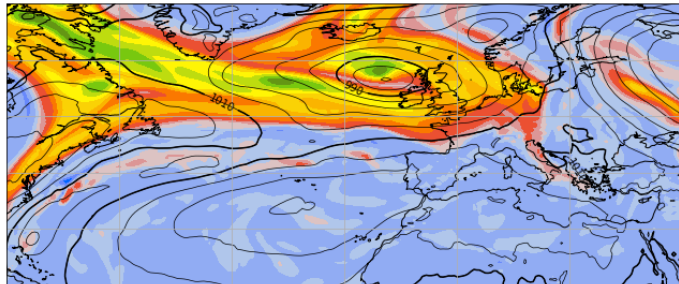
60°N
50°N
40°N
30°N

12 UTC on 13 October 1987



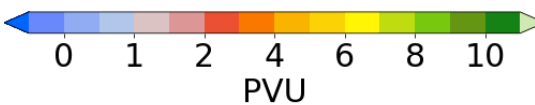
60°N
50°N
40°N
30°N

18 UTC on 13 October 1987

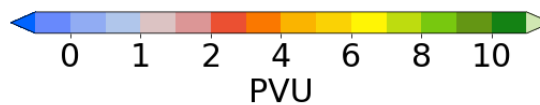


60°N
50°N
40°N
30°N

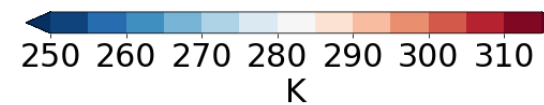
60°W 40°W 20°W 0° 20°E



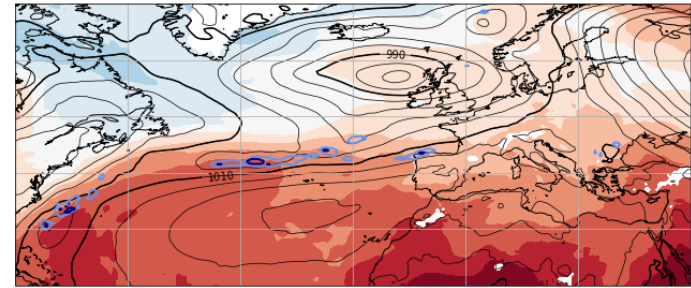
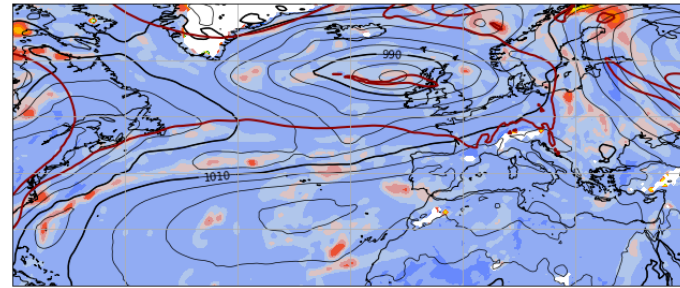
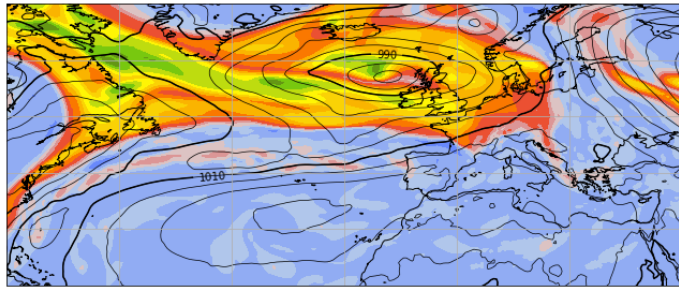
60°W 40°W 20°W 0° 20°E



60°W 40°W 20°W 0° 20°E

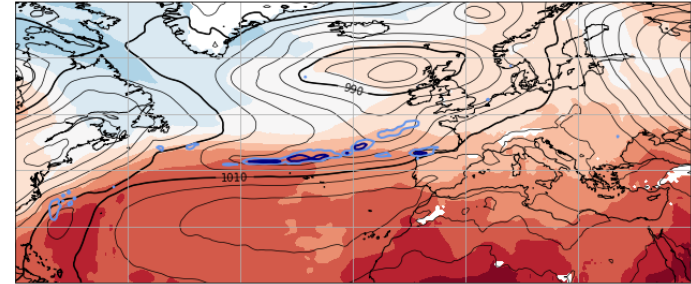
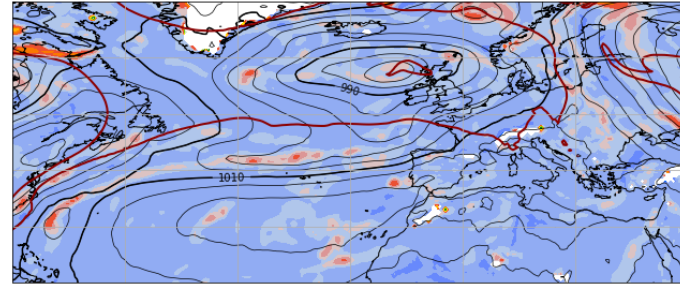
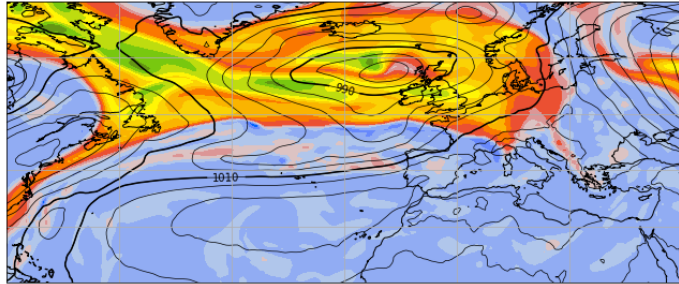


00 UTC on 14 October 1987



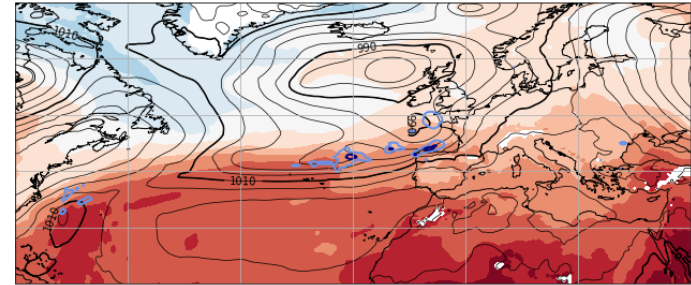
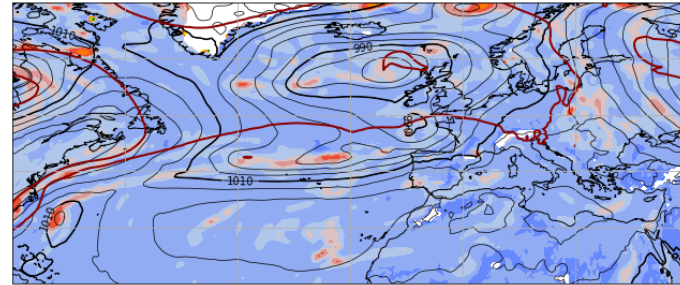
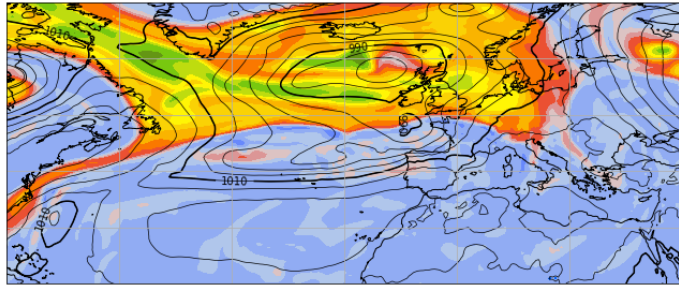
60°N
50°N
40°N
30°N

06 UTC on 14 October 1987



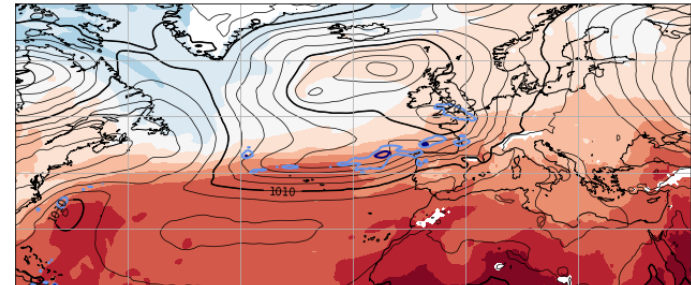
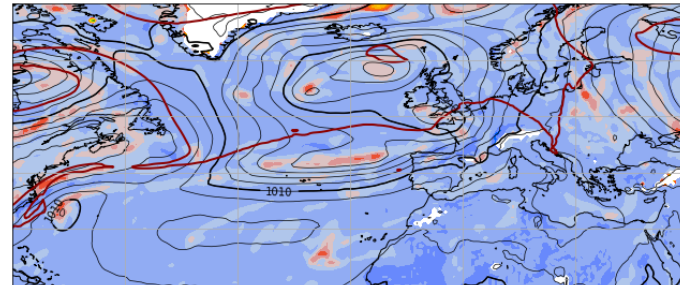
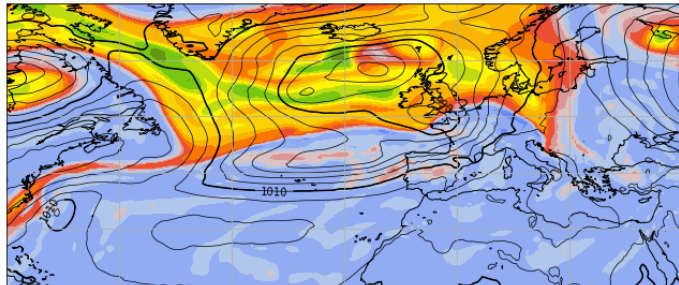
60°N
50°N
40°N
30°N

12 UTC on 14 October 1987

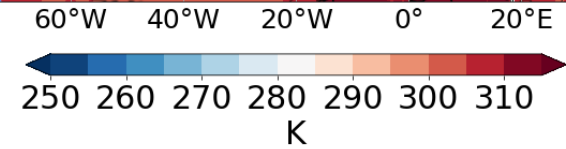
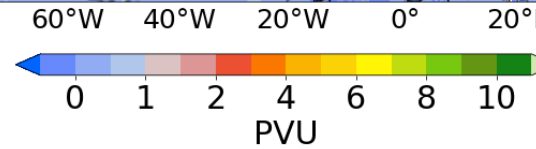
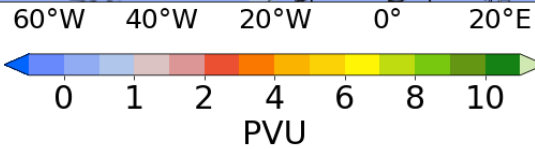


60°N
50°N
40°N
30°N

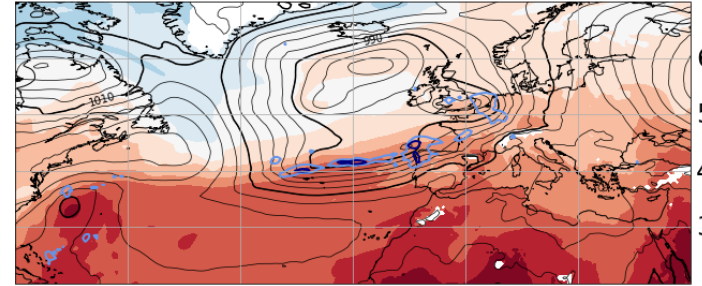
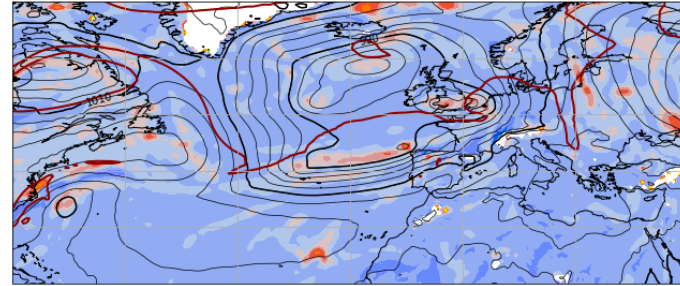
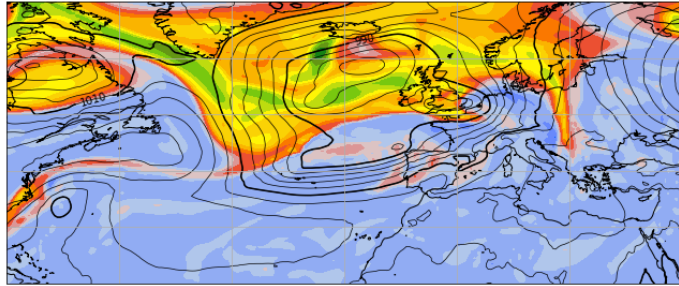
18 UTC on 14 October 1987



60°N
50°N
40°N
30°N

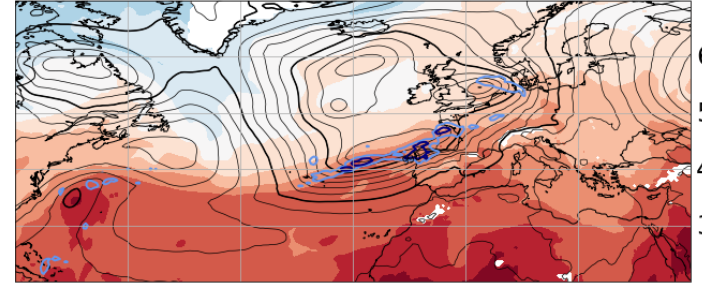
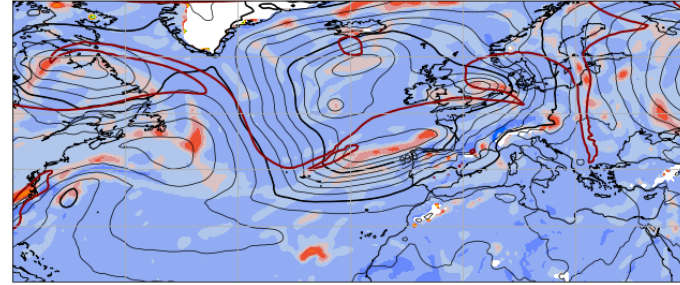
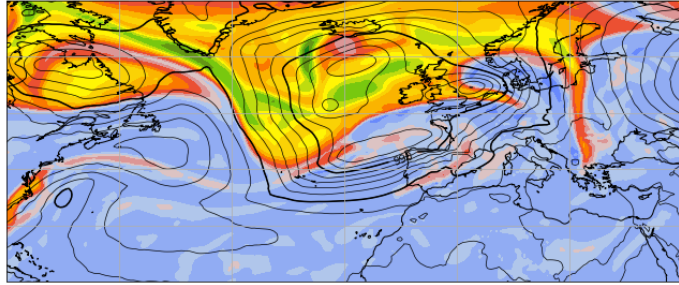


00 UTC on 15 October 1987



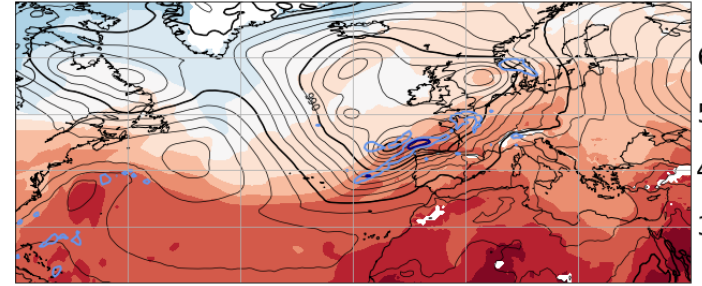
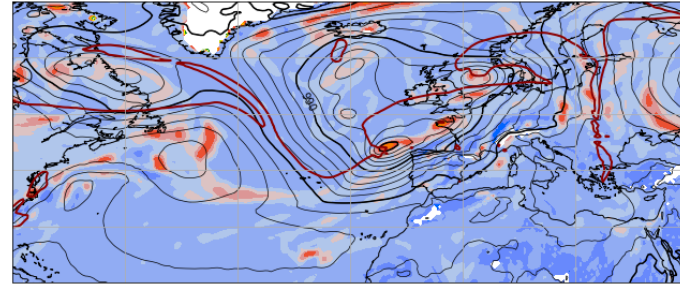
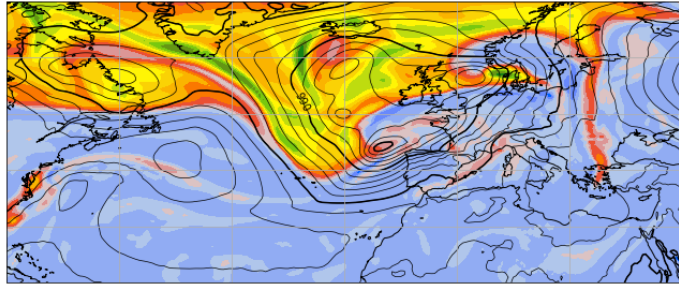
60°N
50°N
40°N
30°N

06 UTC on 15 October 1987



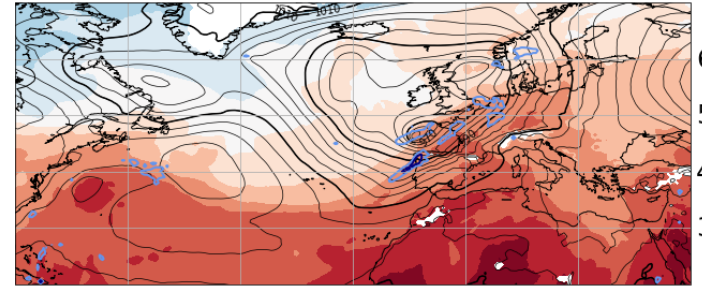
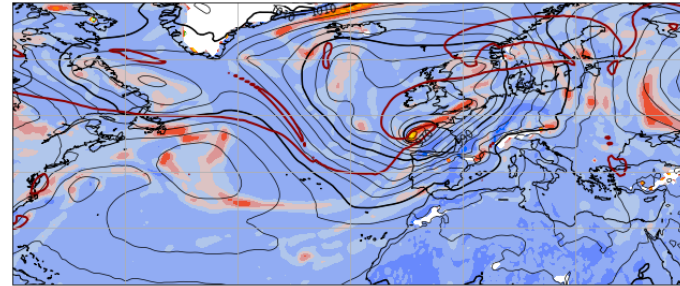
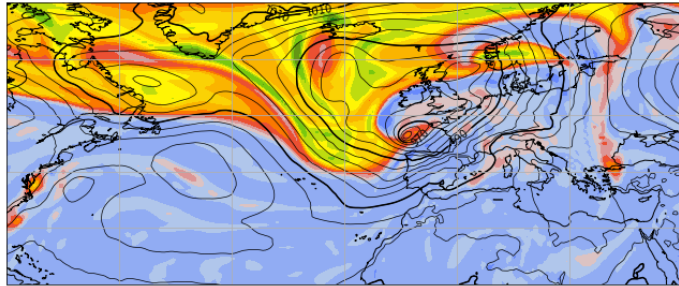
60°N
50°N
40°N
30°N

12 UTC on 15 October 1987

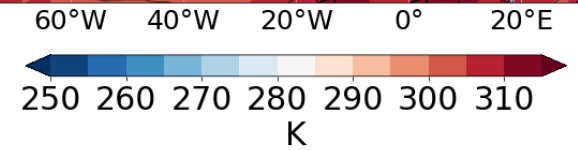
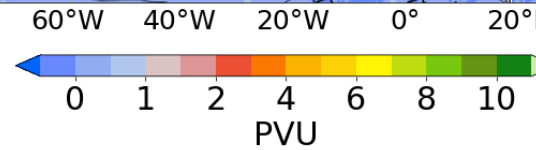
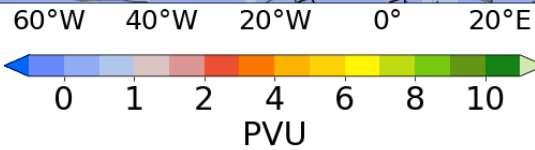


60°N
50°N
40°N
30°N

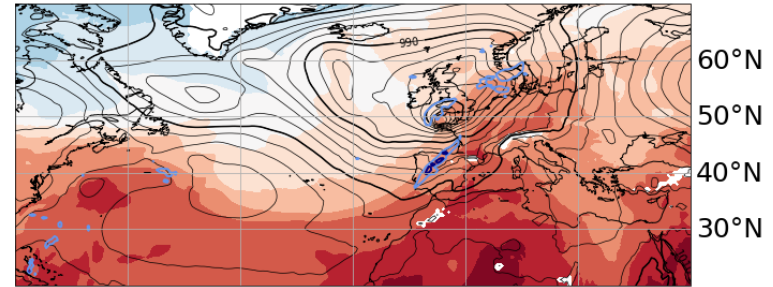
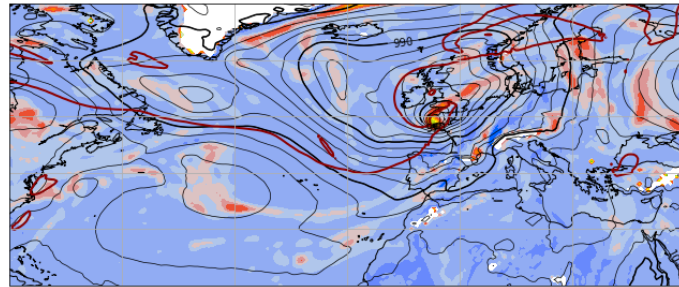
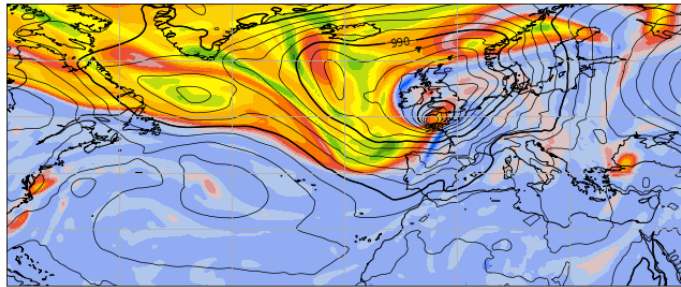
18 UTC on 15 October 1987



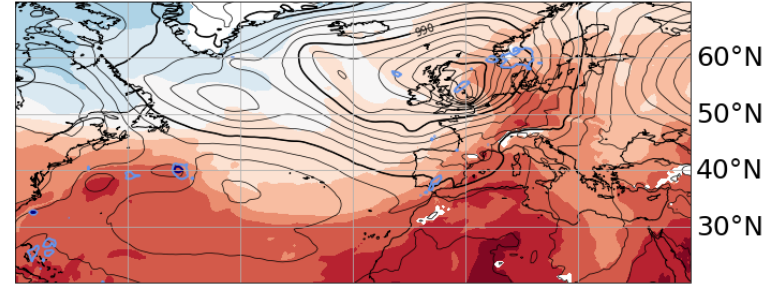
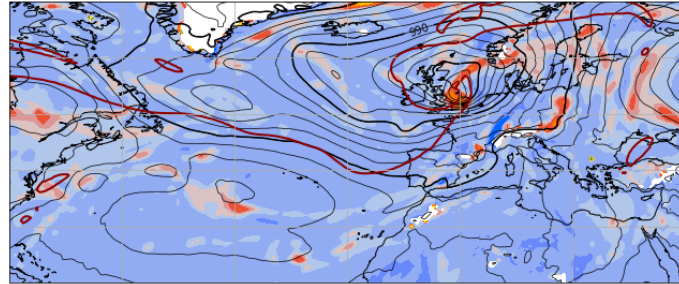
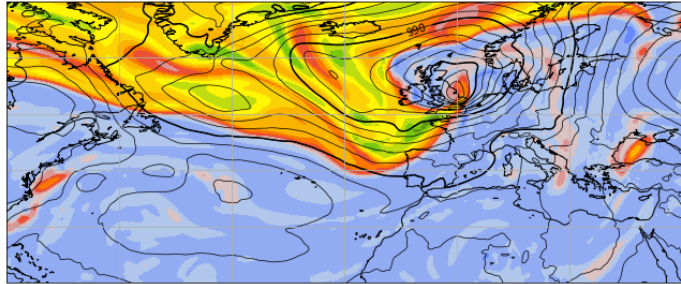
60°N
50°N
40°N
30°N



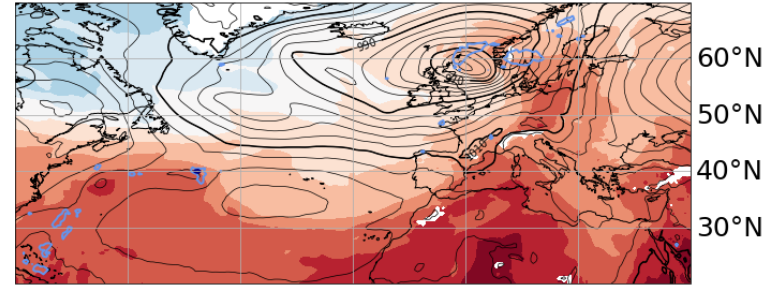
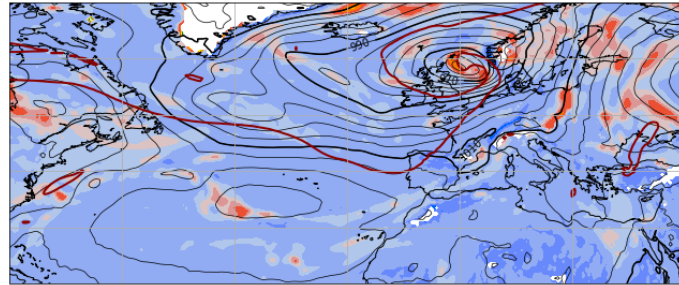
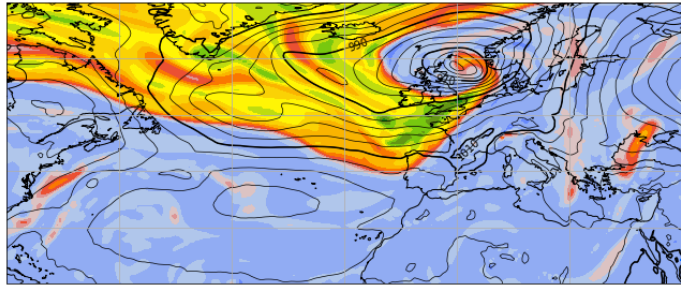
00 UTC on 16 October 1987



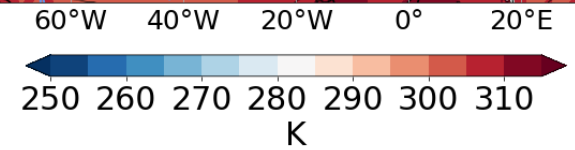
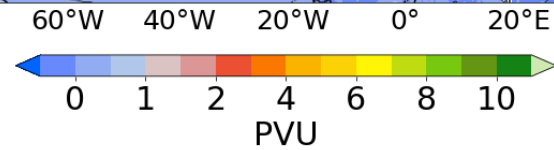
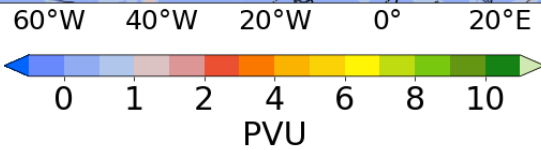
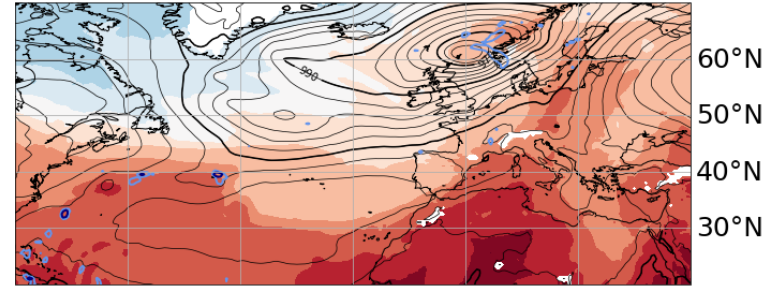
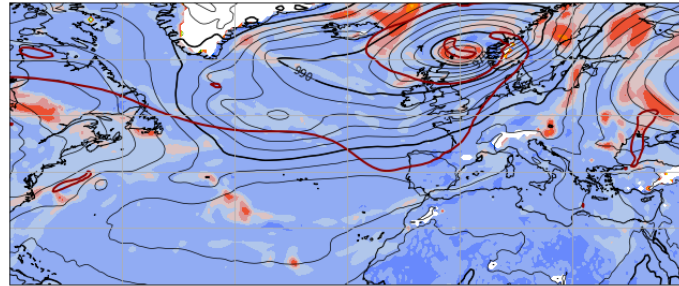
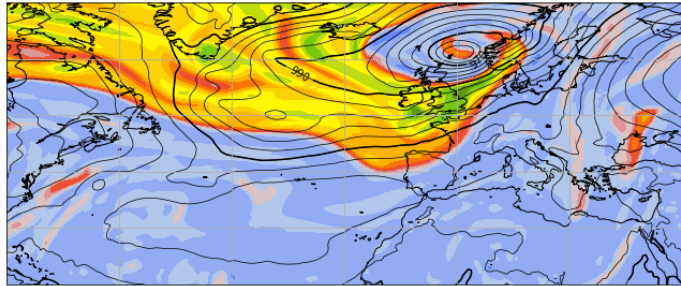
06 UTC on 16 October 1987



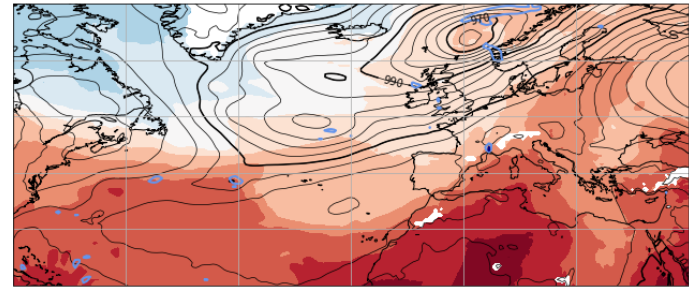
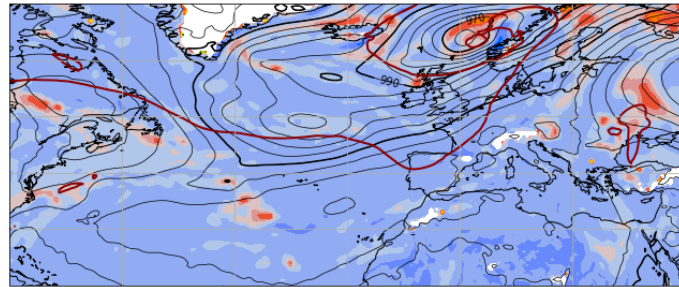
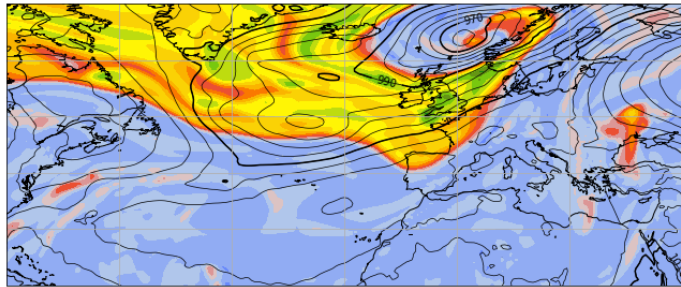
12 UTC on 16 October 1987



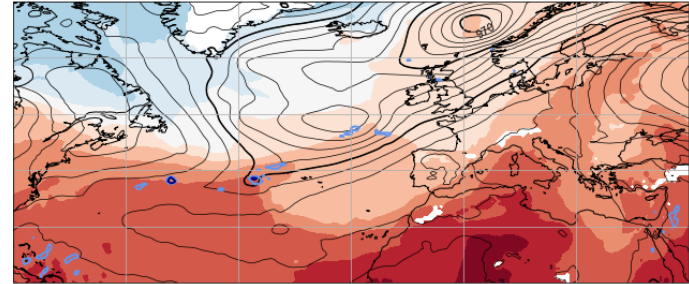
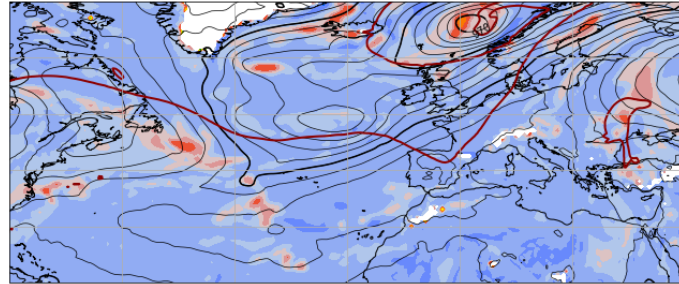
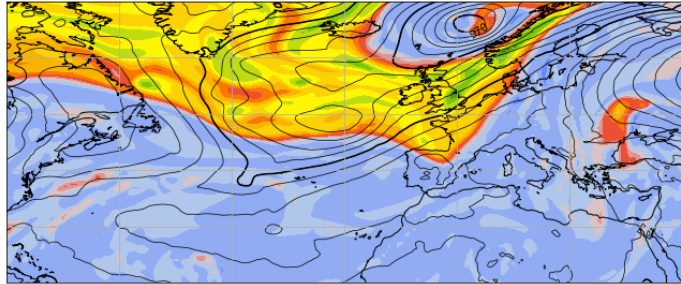
18 UTC on 16 October 1987



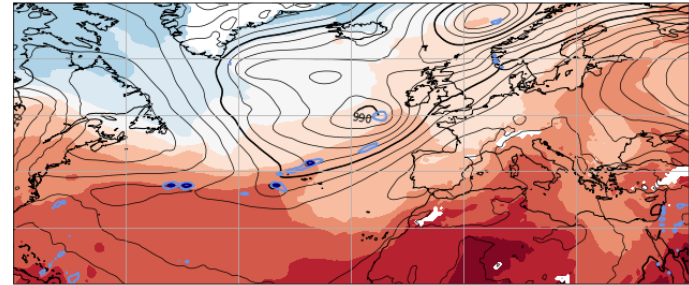
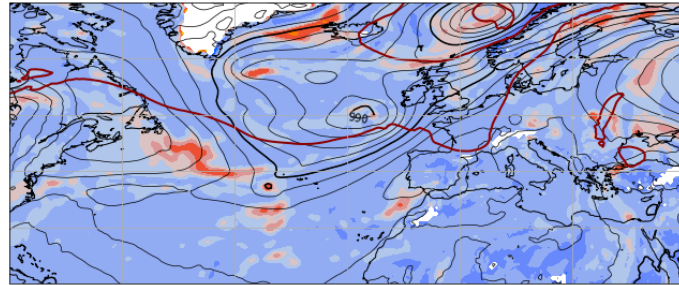
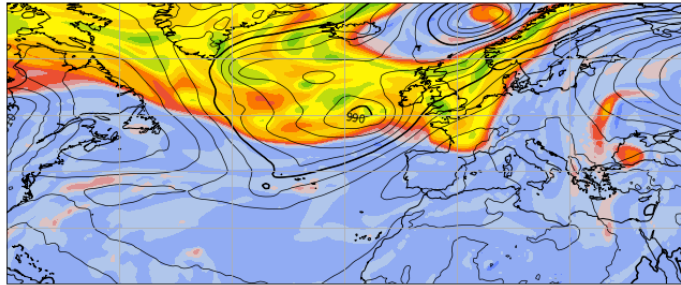
00 UTC on 17 October 1987



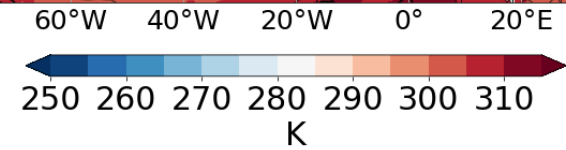
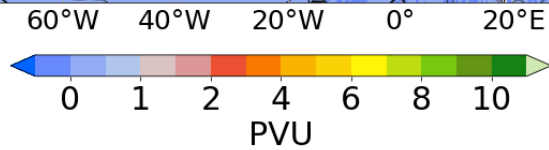
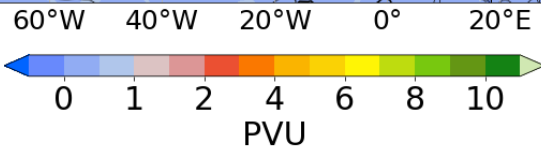
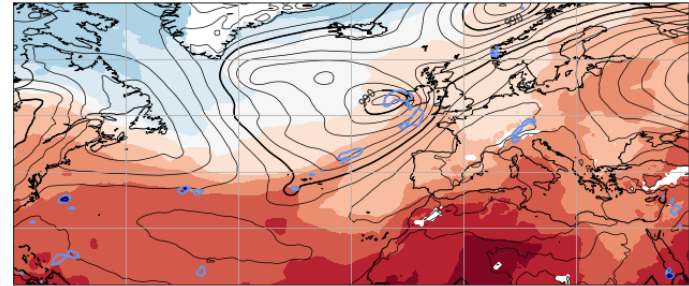
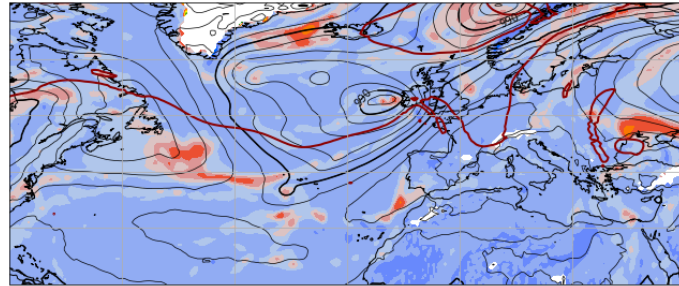
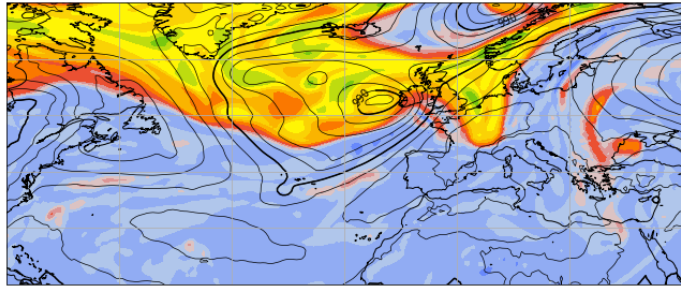
06 UTC on 17 October 1987



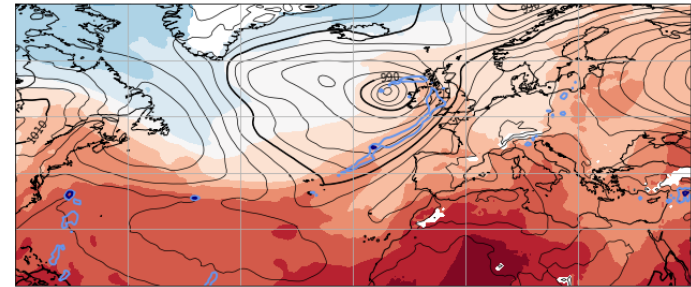
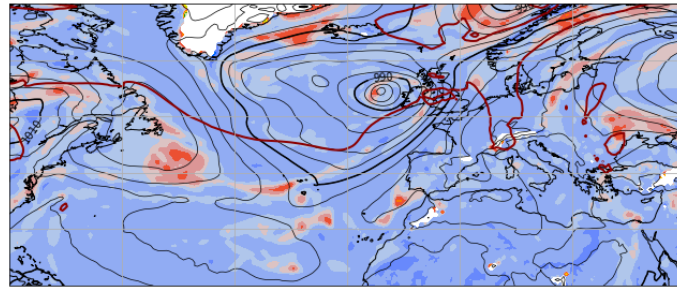
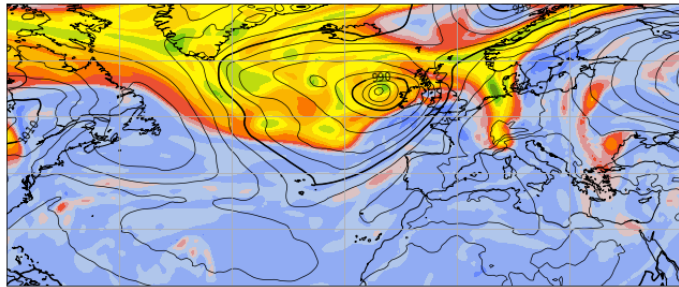
12 UTC on 17 October 1987



18 UTC on 17 October 1987

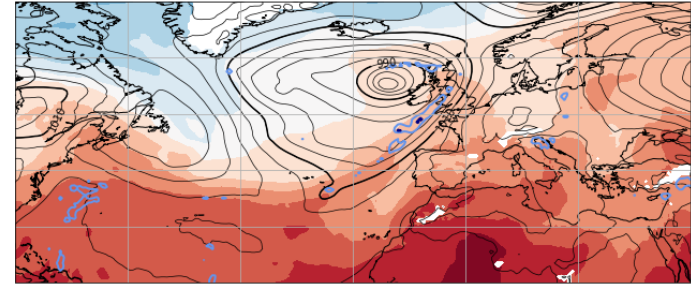
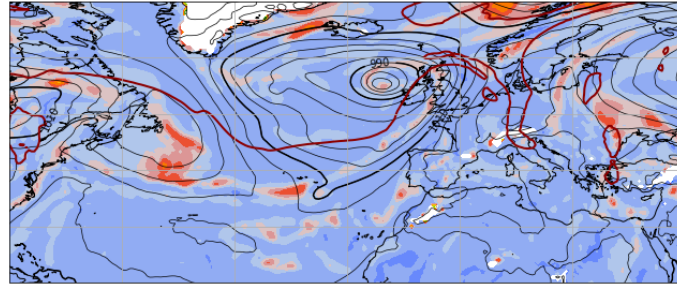
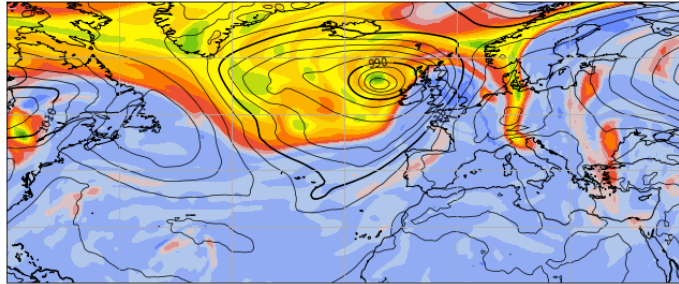


00 UTC on 18 October 1987



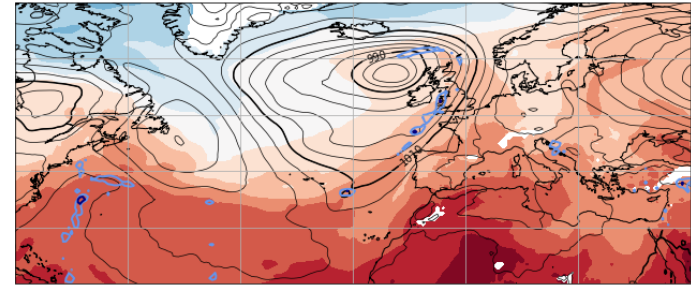
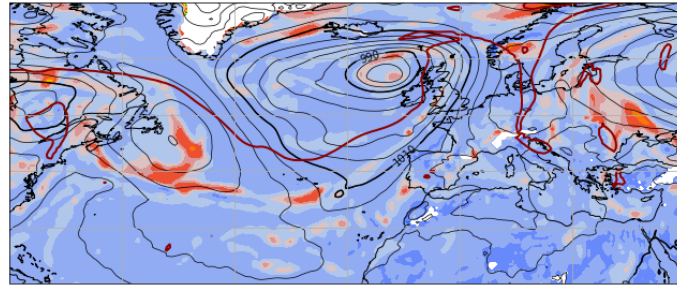
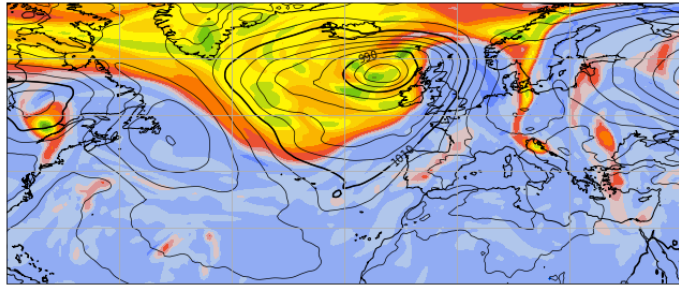
60°N
50°N
40°N
30°N

06 UTC on 18 October 1987



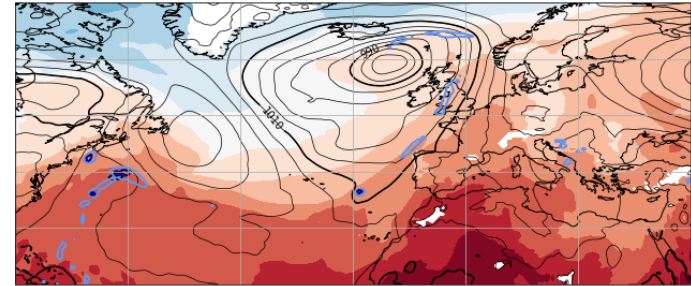
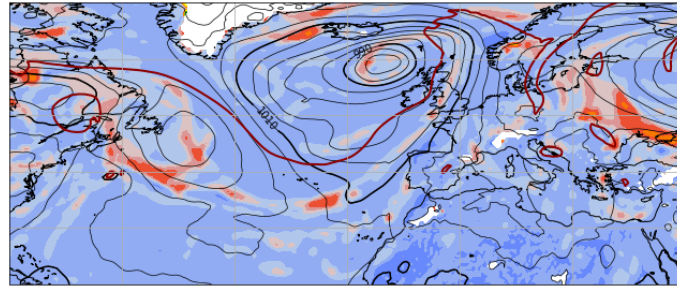
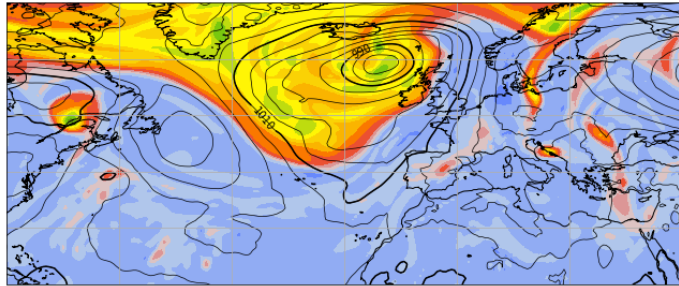
60°N
50°N
40°N
30°N

12 UTC on 18 October 1987

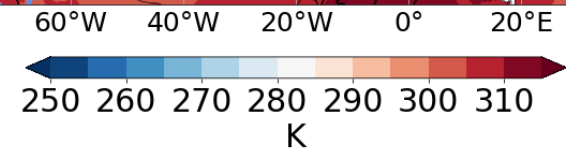
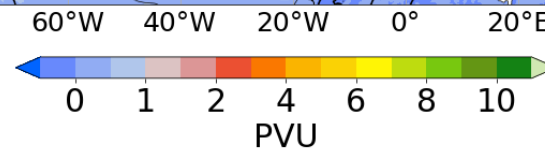
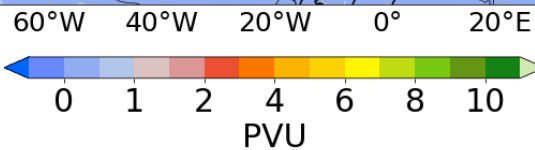


60°N
50°N
40°N
30°N

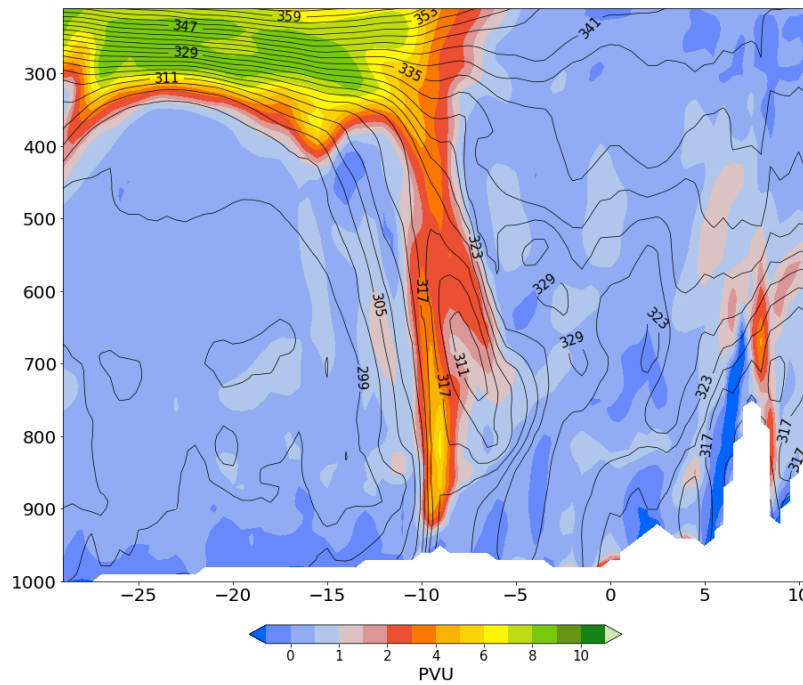
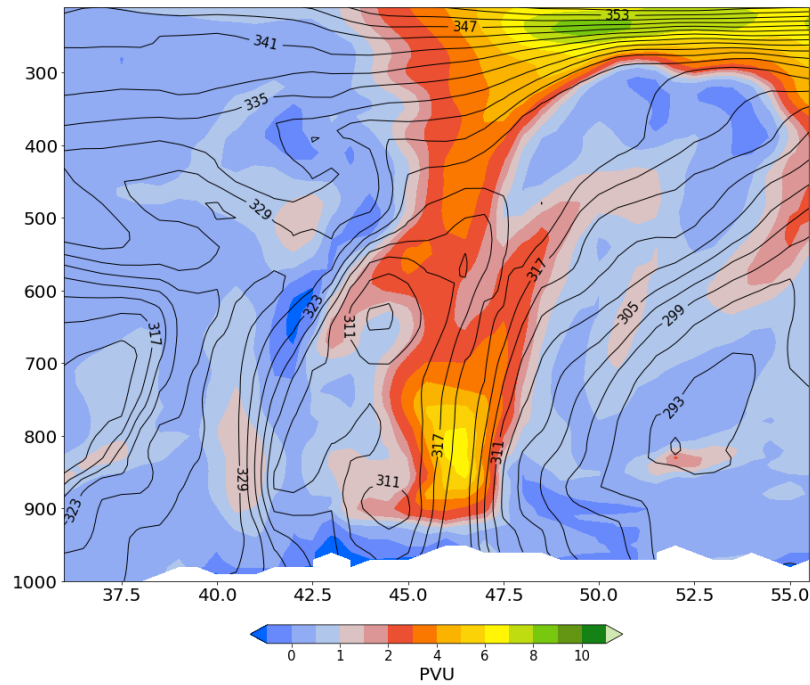
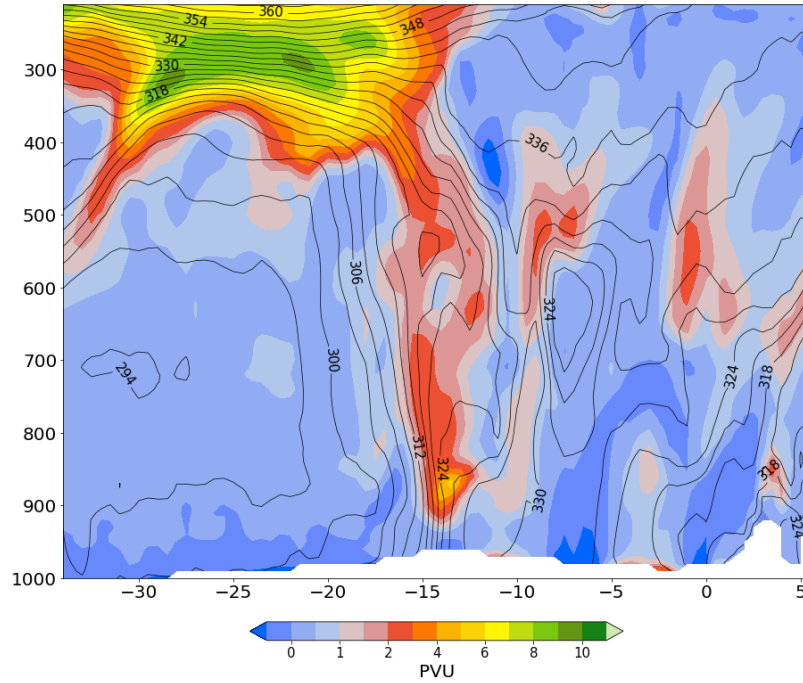
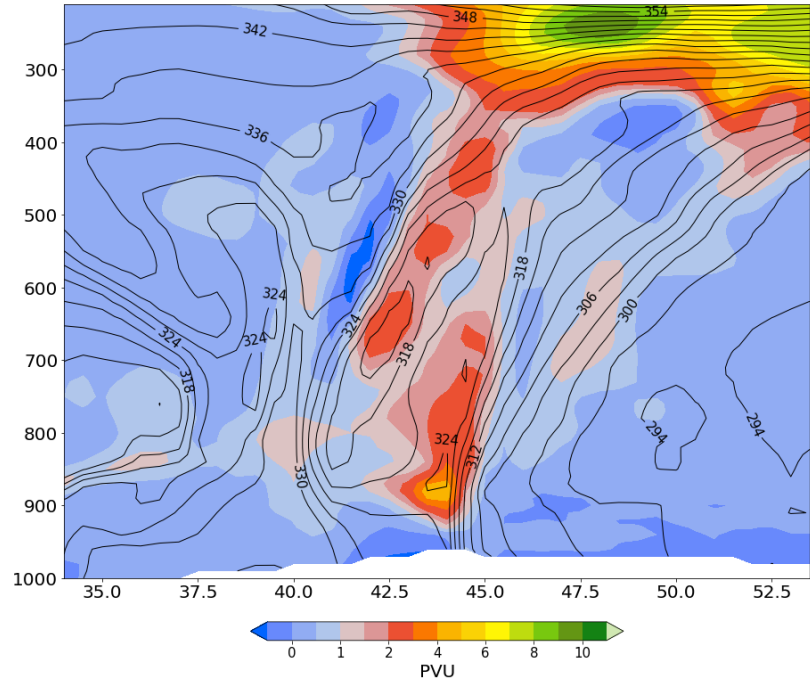
18 UTC on 18 October 1987

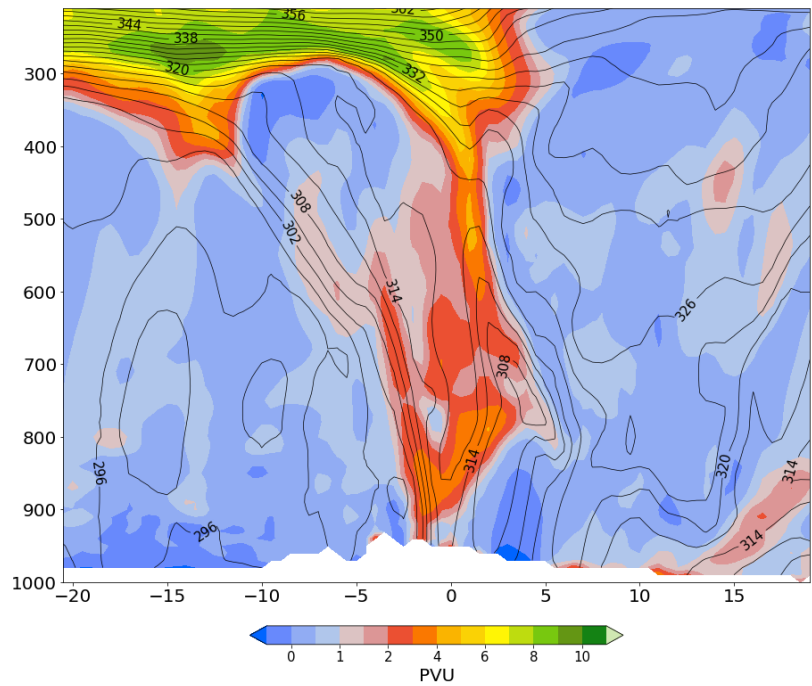
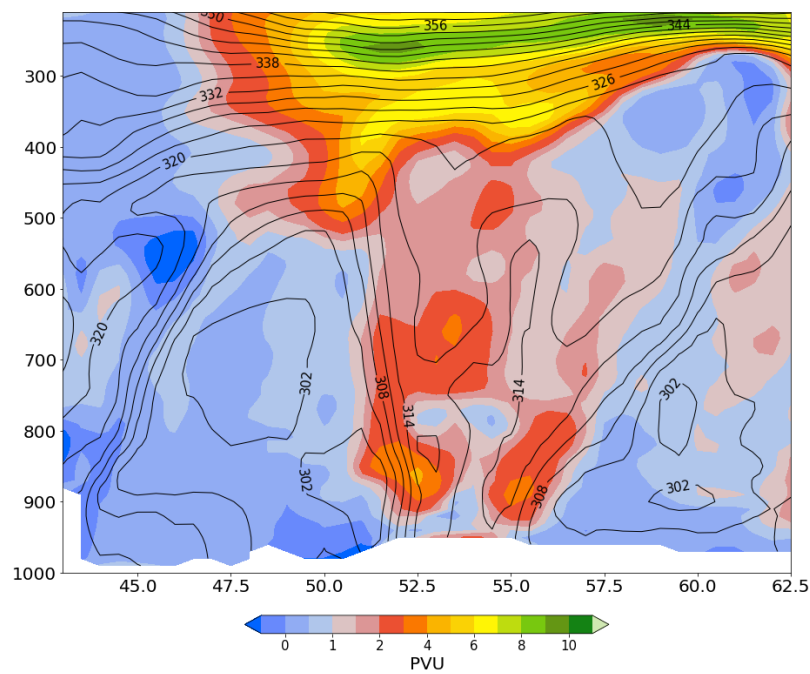
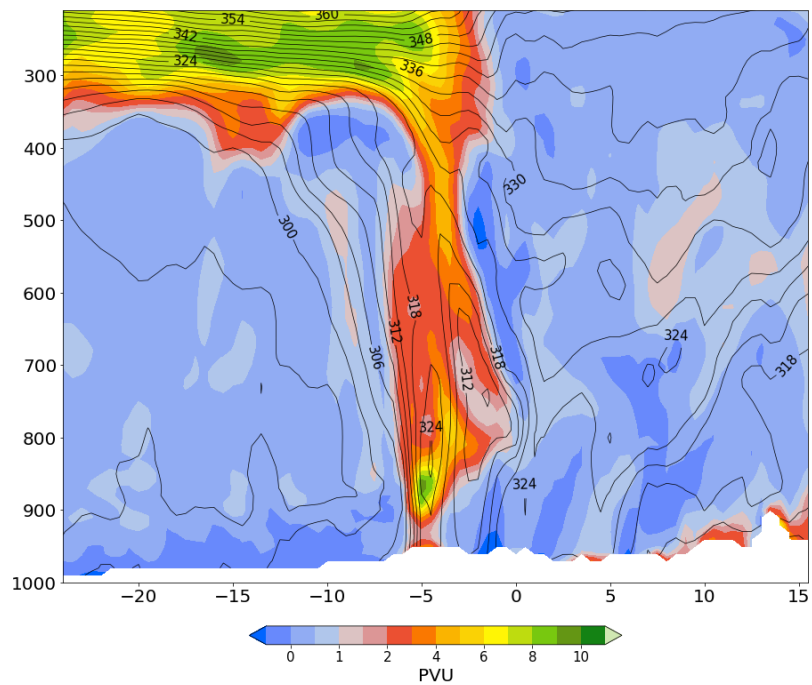
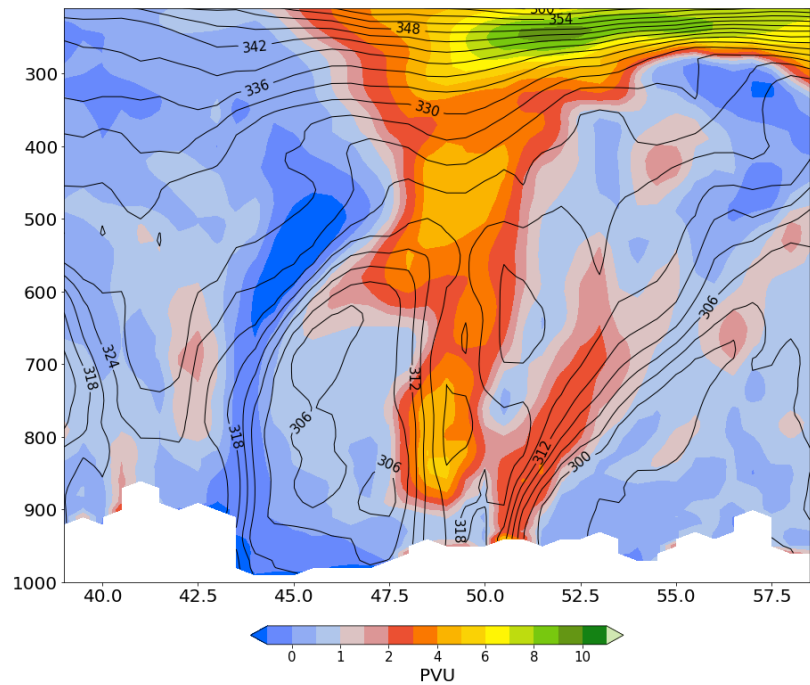


60°N
50°N
40°N
30°N



Great UK October Storm 12 UTC 15 Oct to 06 UTC 16 Oct 1987





Lothar

Horizontal maps from 00 UTC on 23 December – 18 UTC on 28 December 1999

Vertical cross sections from 06 UTC on 25 December – 12 UTC on 26 December 1999

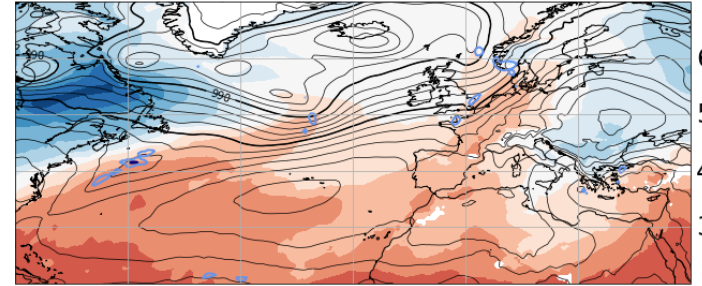
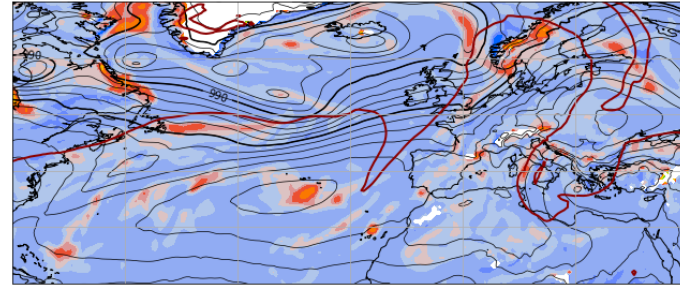
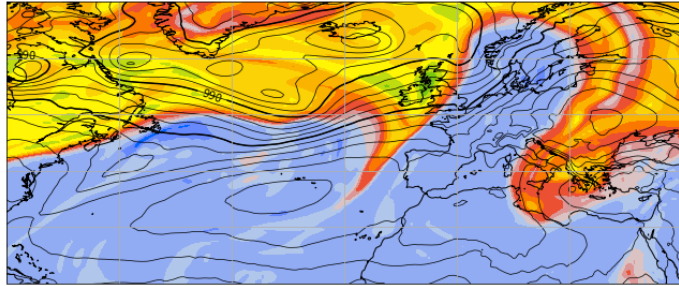
meridional cross sections (S to N)

date	cyclone center	cross sections		minimum MSLP
		from	to	
19991225_06	38°W / 44°N	38°W / 34°N	38°W / 54°N	998 hPa
19991225_12	29°W / 46°N	29°W / 36°N	29°W / 56°N	998 hPa
19991225_18	20°W / 47°N	20°W / 37°N	20°W / 57°N	994 hPa
19991226_00	9°W / 48°N	9°W / 38°N	9°W / 58°N	986 hPa
19991226_06	2°E / 49°N	2°E / 39°N	2°E / 59°N	978 hPa
19991226_12	10°E / 50°N	10°E / 40°N	10°E / 60°N	978 hPa

zonal cross sections (W to E)

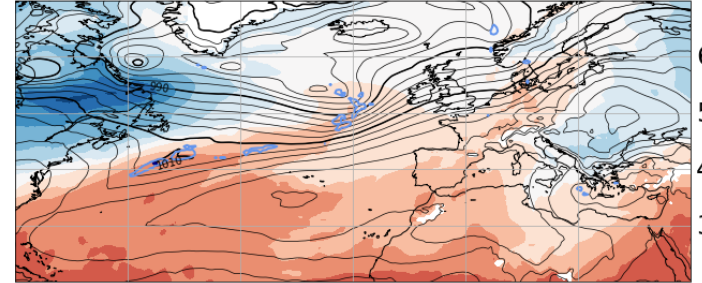
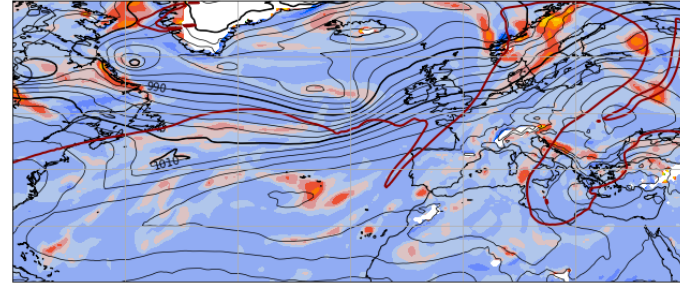
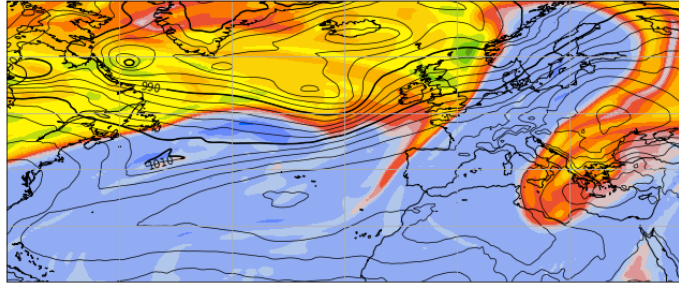
date	cyclone center	cross sections		minimum MSLP
		from	to	
19991225_06	38°W / 44°N	58°W / 44°N	18°W / 44°N	998 hPa
19991225_12	29°W / 46°N	49°W / 46°N	9°W / 46°N	998 hPa
19991225_18	20°W / 47°N	40°W / 47°N	0°E / 47°N	994 hPa
19991226_00	9°W / 48°N	29°W / 48°N	11°E / 48°N	986 hPa
19991226_06	2°E / 49°N	18°W / 49°N	22°E / 49°N	978 hPa
19991226_12	10°E / 50°N	10°W / 50°N	30°E / 50°N	978 hPa

00 UTC on 23 December 1999



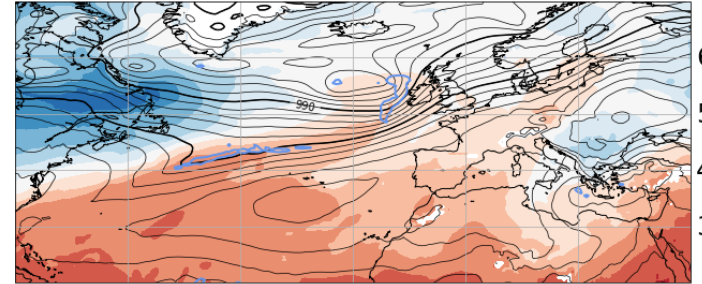
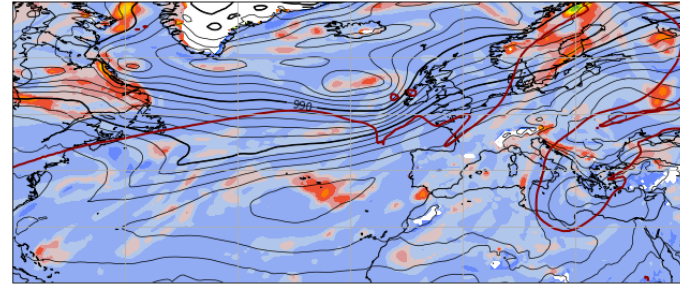
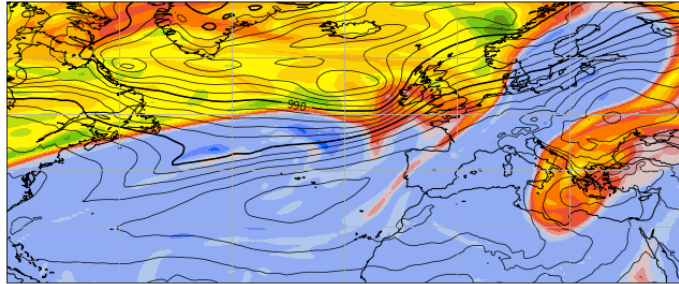
60°N
50°N
40°N
30°N

06 UTC on 23 December 1999



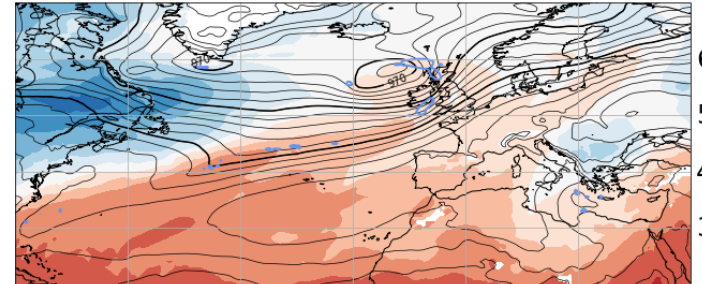
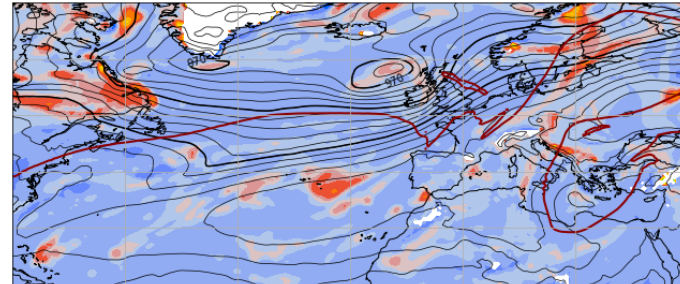
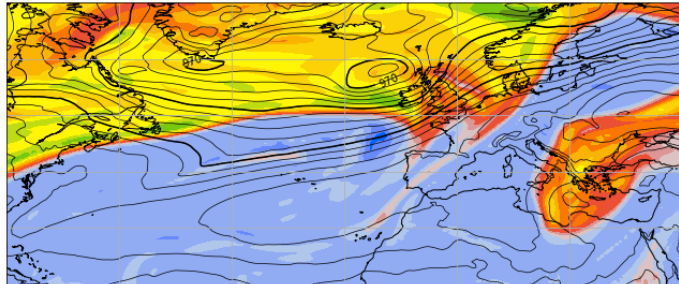
60°N
50°N
40°N
30°N

12 UTC on 23 December 1999

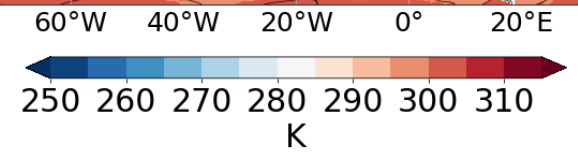
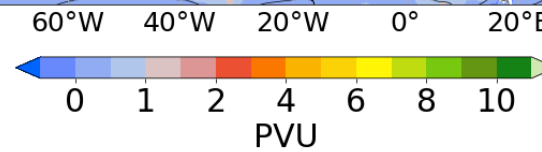
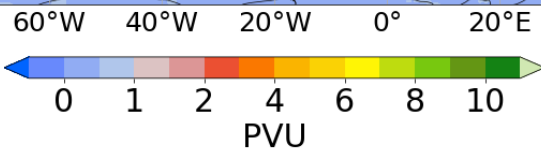


60°N
50°N
40°N
30°N

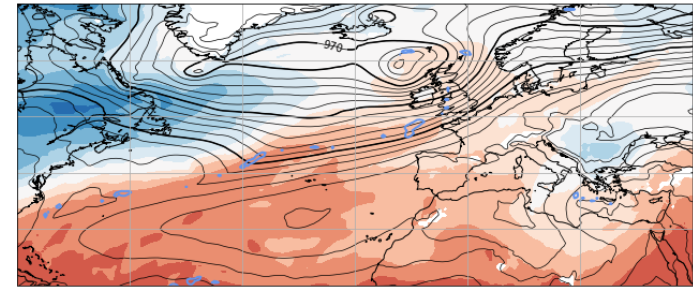
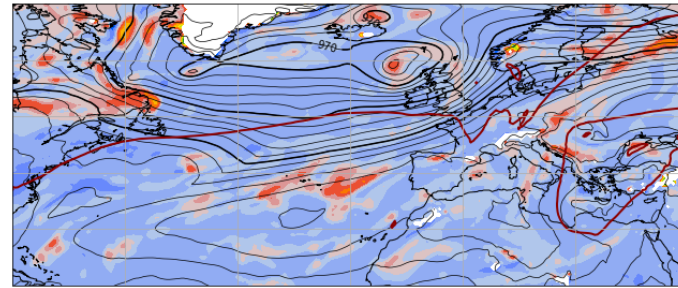
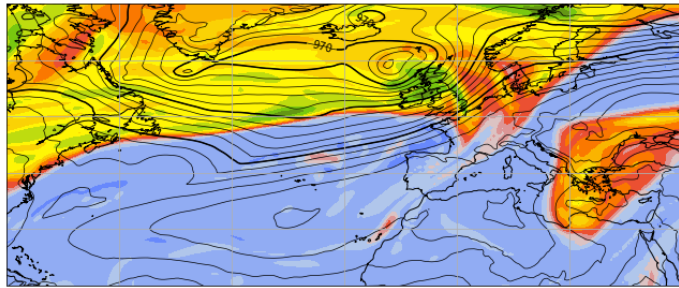
18 UTC on 23 December 1999



60°N
50°N
40°N
30°N

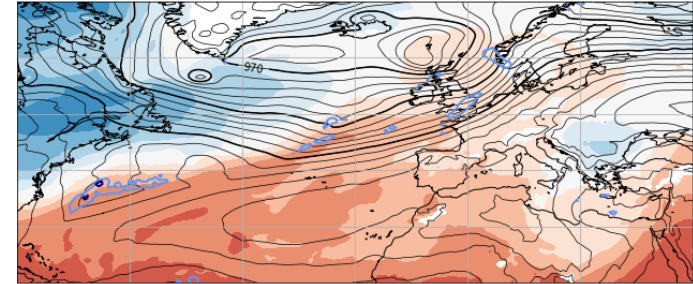
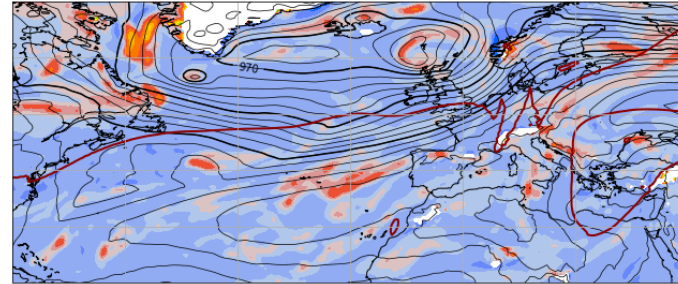
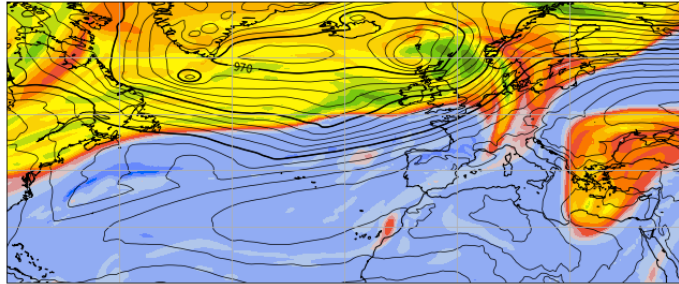


00 UTC on 24 December 1999



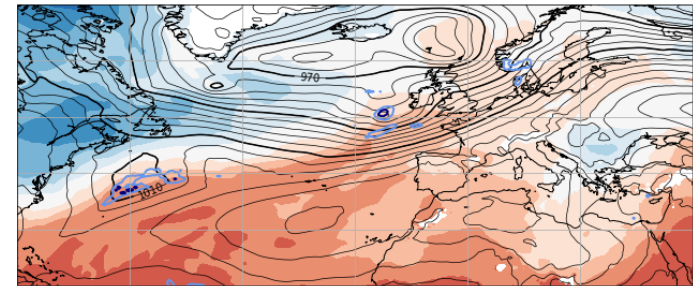
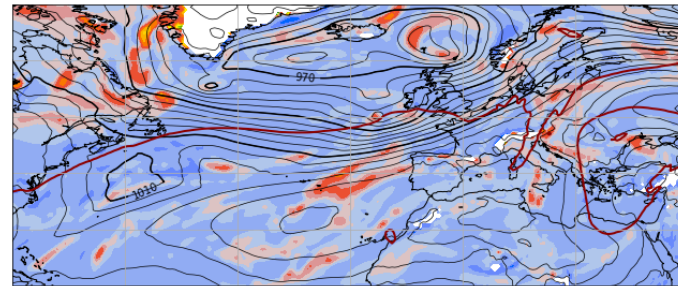
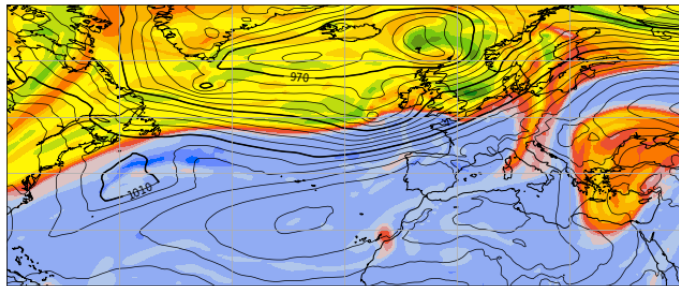
60°N
50°N
40°N
30°N

06 UTC on 24 December 1999



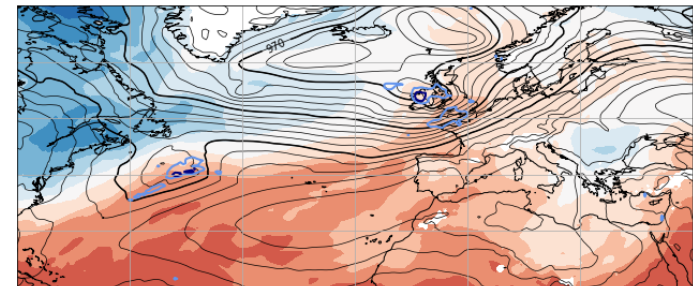
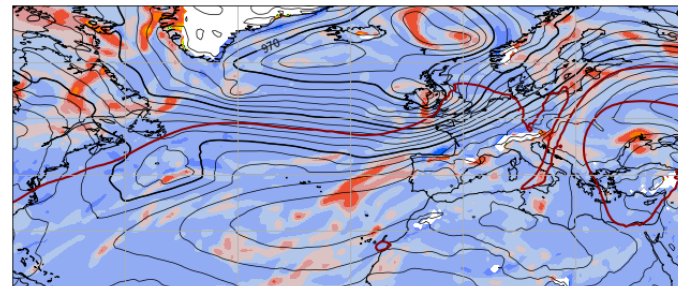
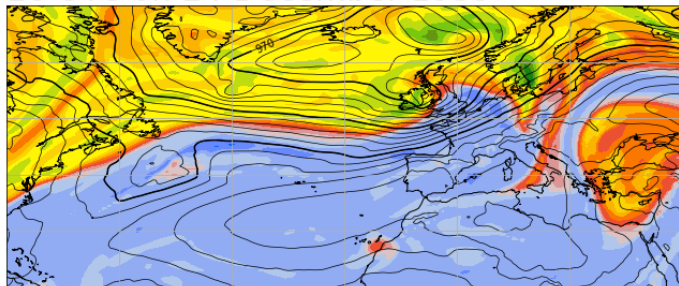
60°N
50°N
40°N
30°N

12 UTC on 24 December 1999

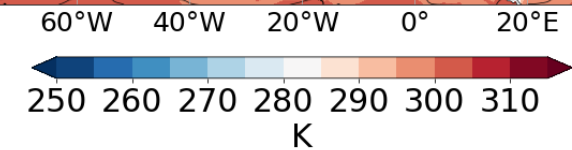
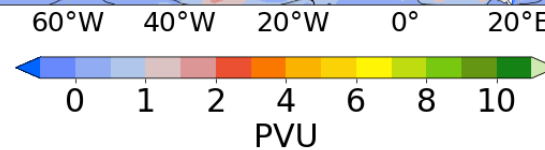
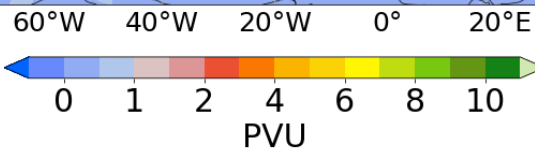


60°N
50°N
40°N
30°N

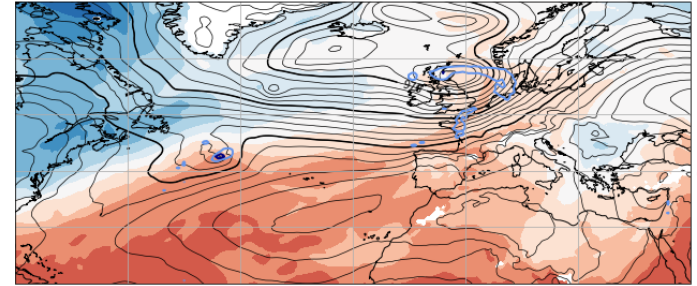
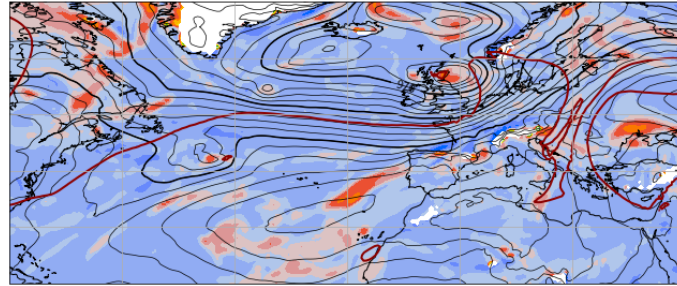
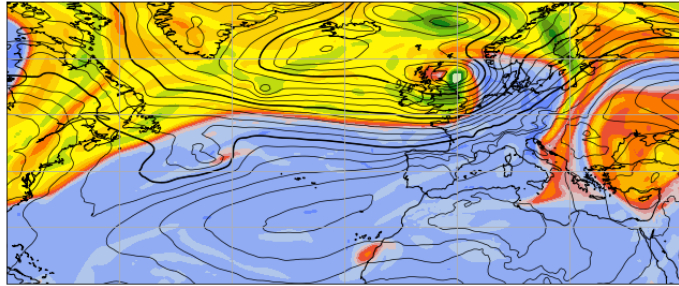
18 UTC on 24 December 1999



60°N
50°N
40°N
30°N

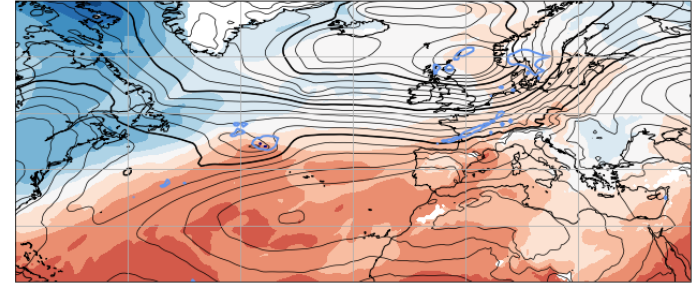
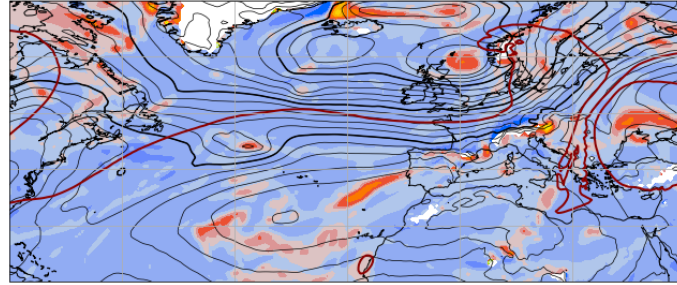
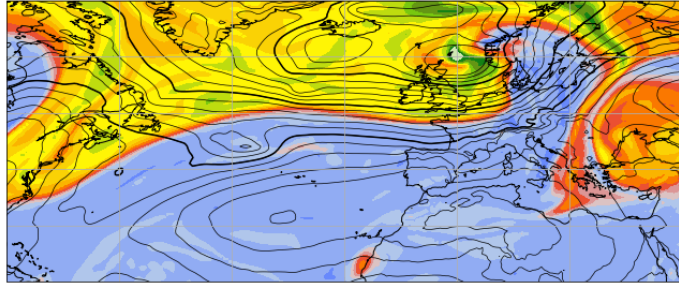


00 UTC on 25 December 1999



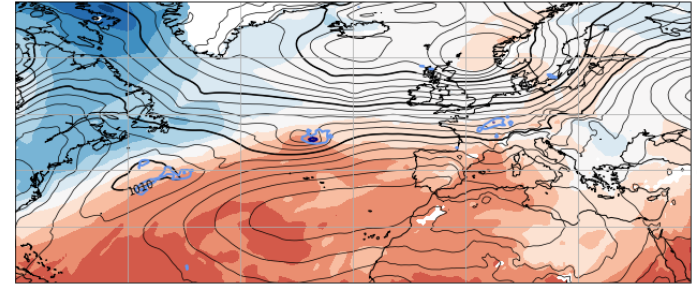
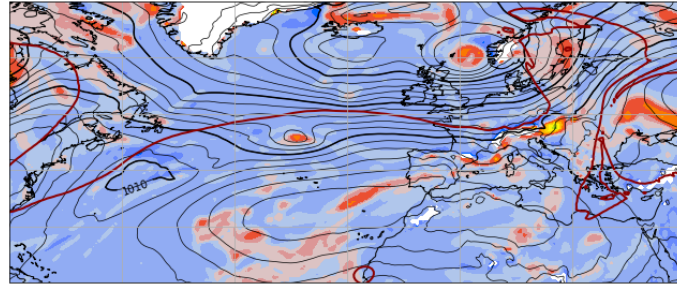
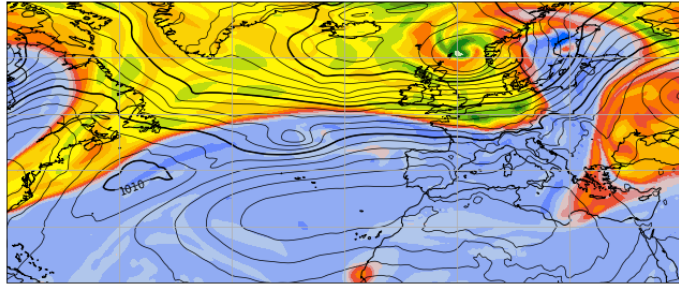
60°N
50°N
40°N
30°N

06 UTC on 25 December 1999



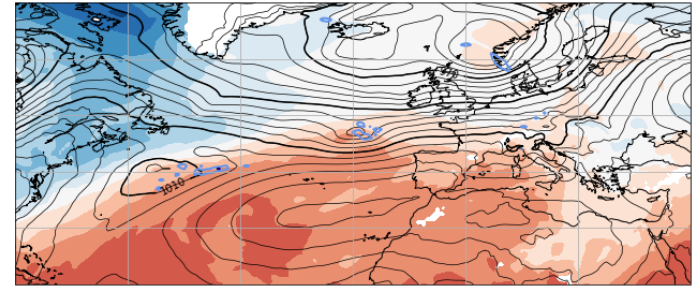
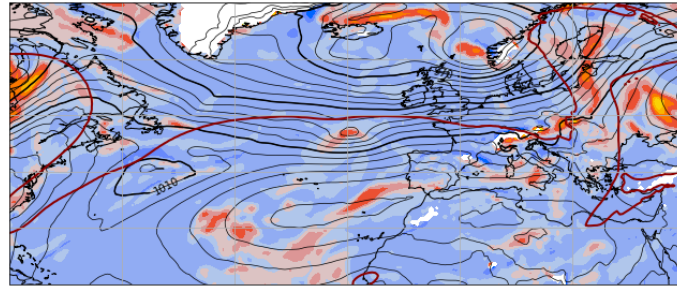
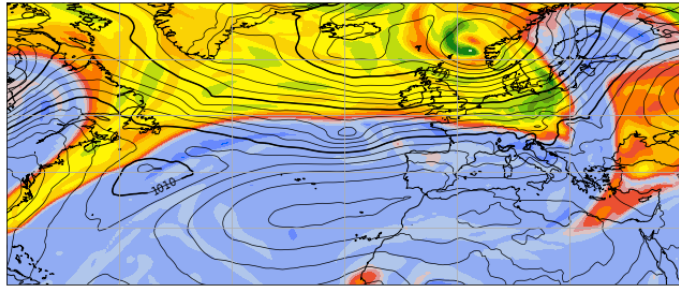
60°N
50°N
40°N
30°N

12 UTC on 25 December 1999

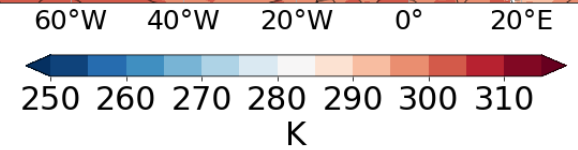
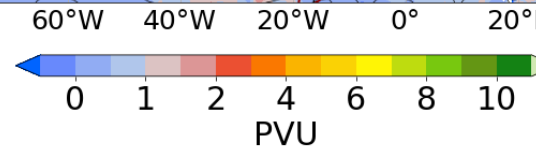
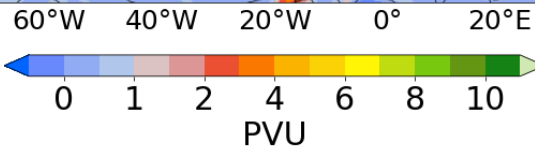


60°N
50°N
40°N
30°N

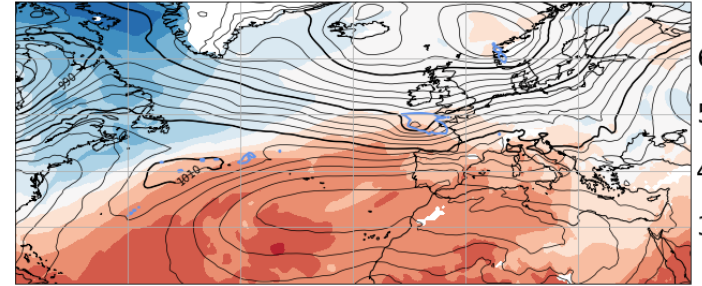
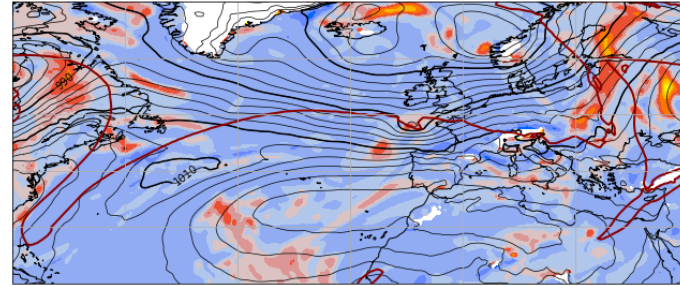
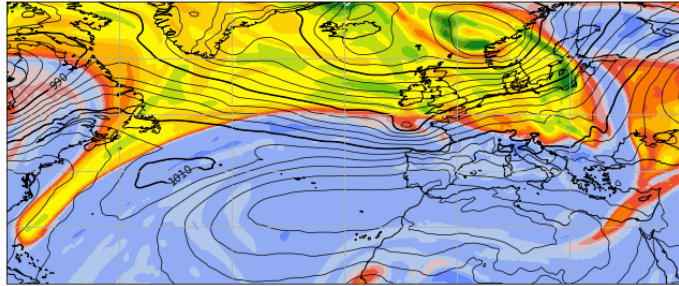
18 UTC on 25 December 1999



60°N
50°N
40°N
30°N

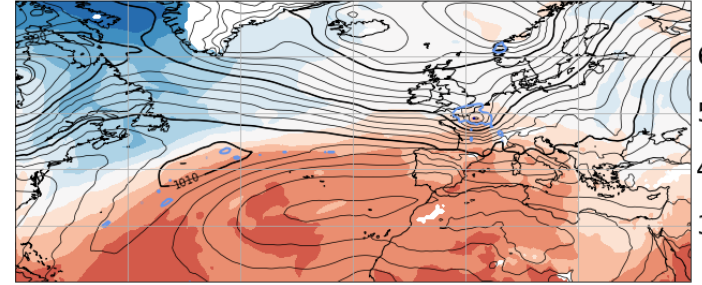
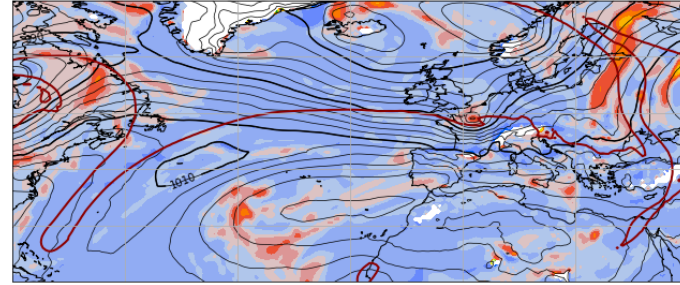
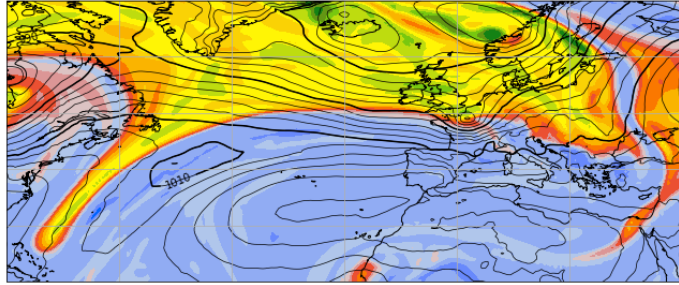


00 UTC on 26 December 1999



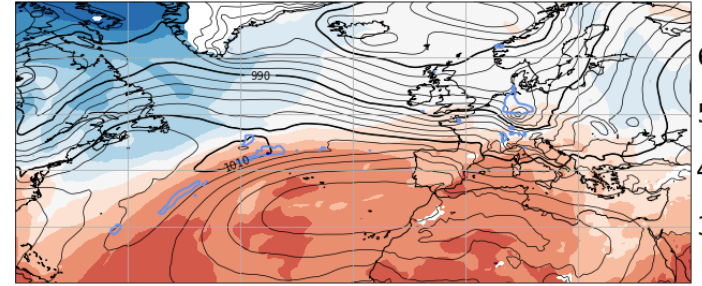
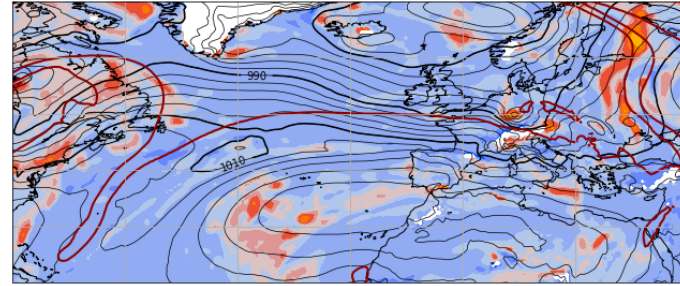
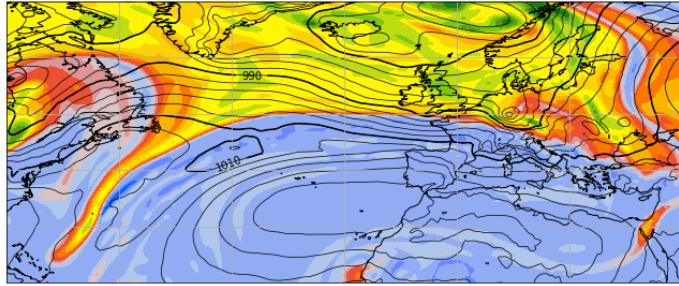
60°N
50°N
40°N
30°N

06 UTC on 26 December 1999



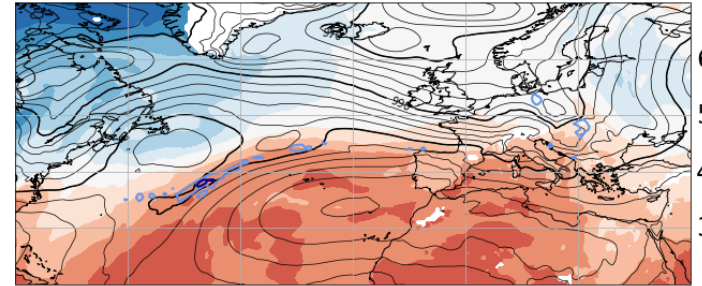
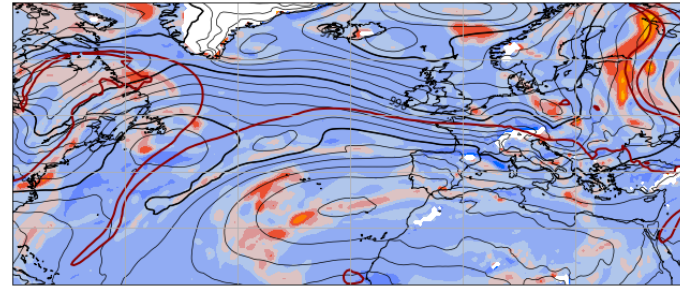
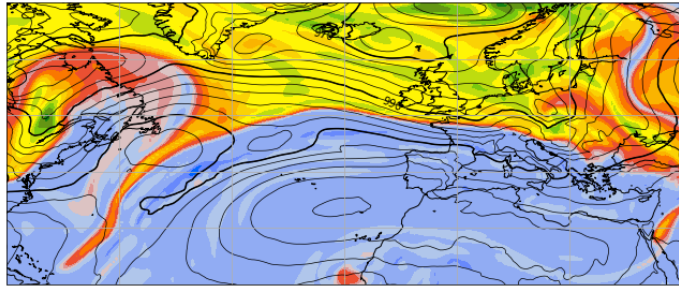
60°N
50°N
40°N
30°N

12 UTC on 26 December 1999

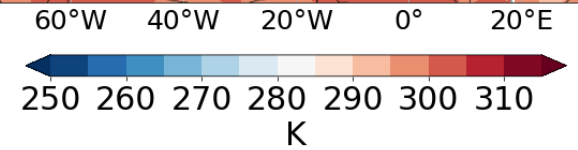
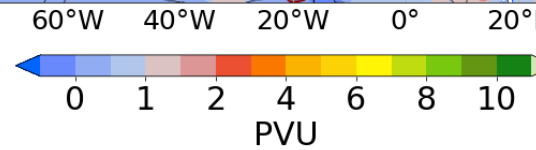
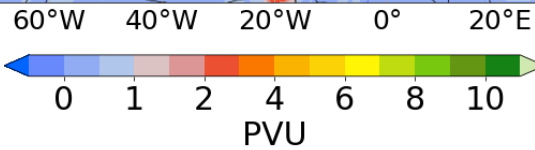


60°N
50°N
40°N
30°N

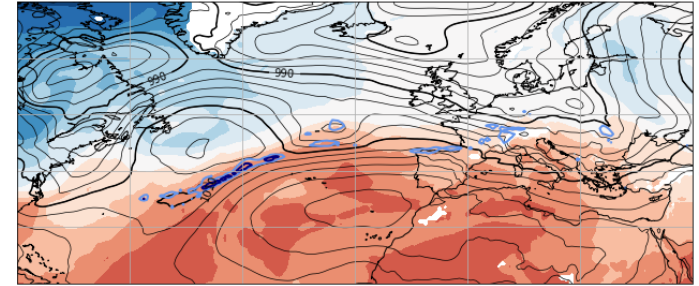
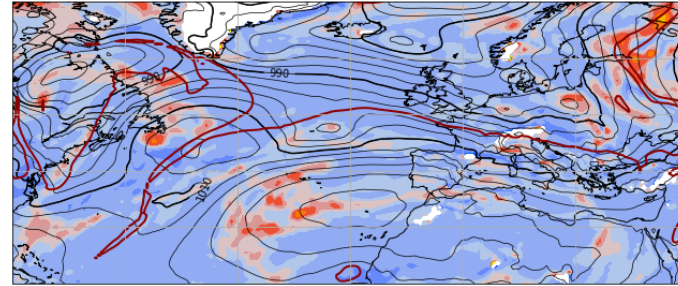
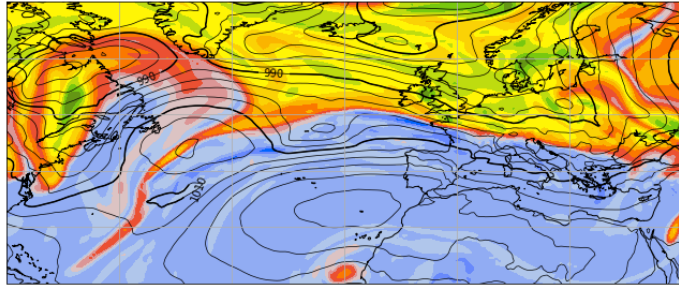
18 UTC on 26 December 1999



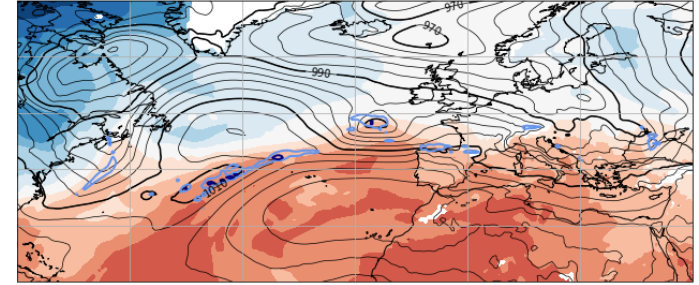
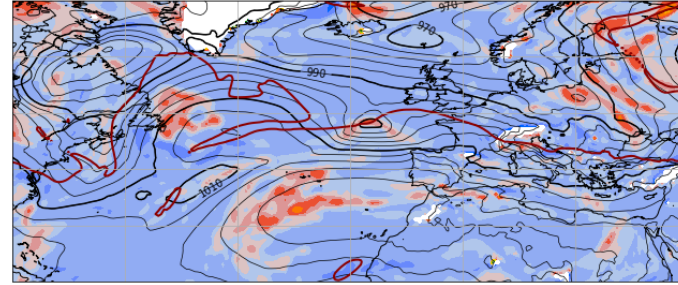
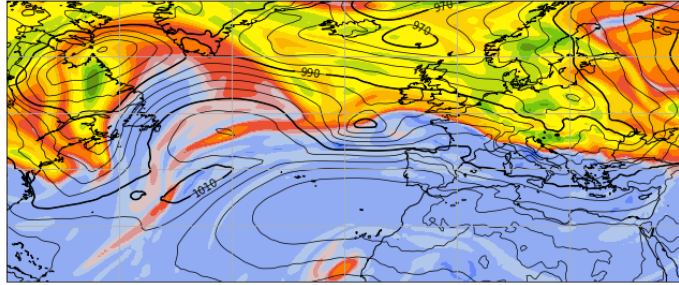
60°N
50°N
40°N
30°N



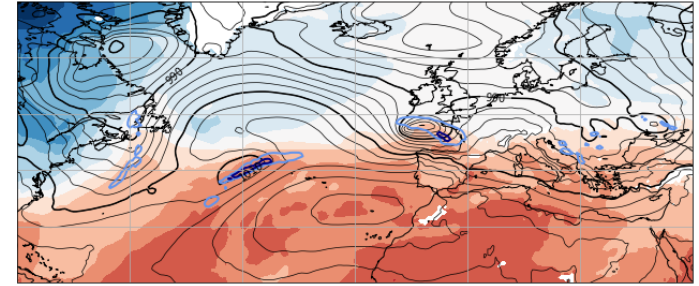
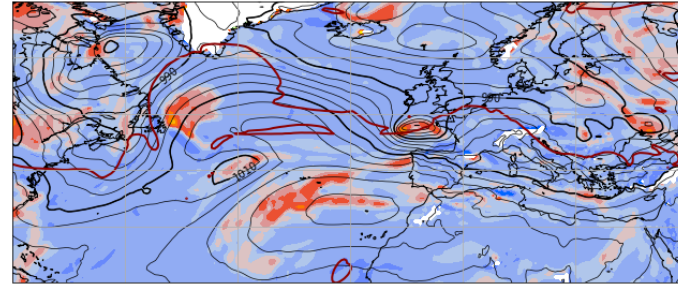
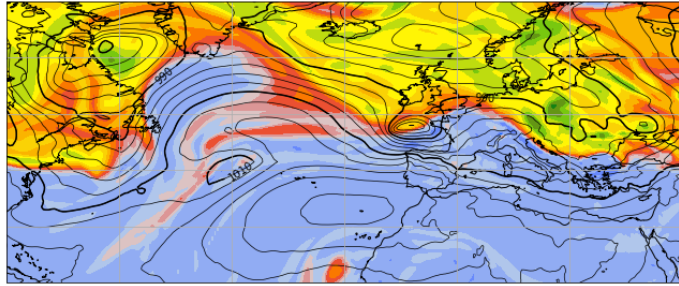
00 UTC on 27 December 1999



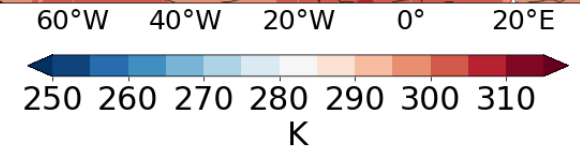
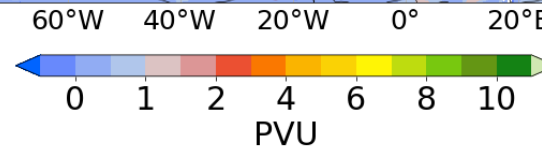
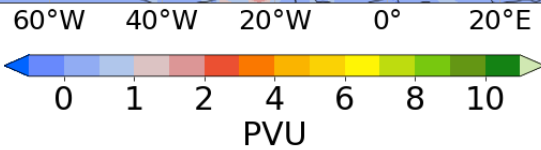
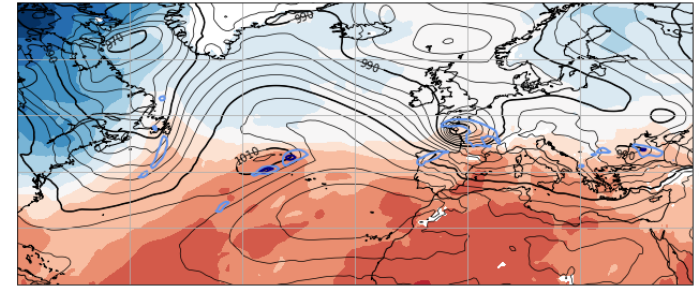
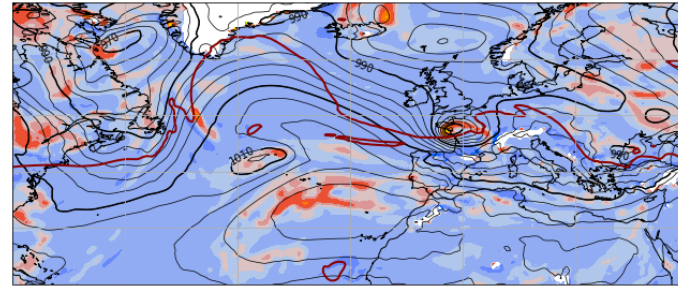
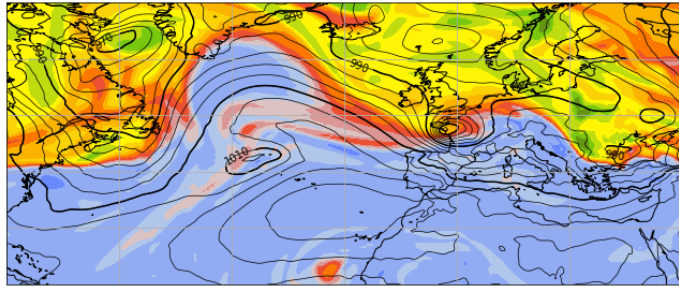
06 UTC on 27 December 1999



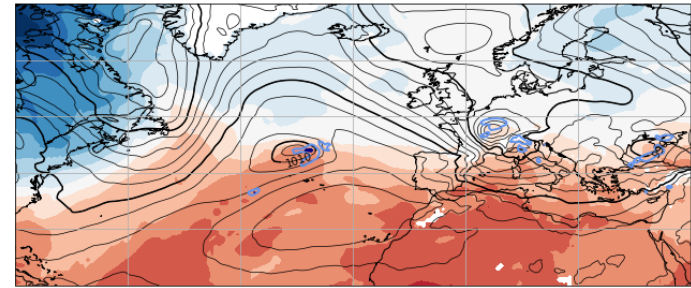
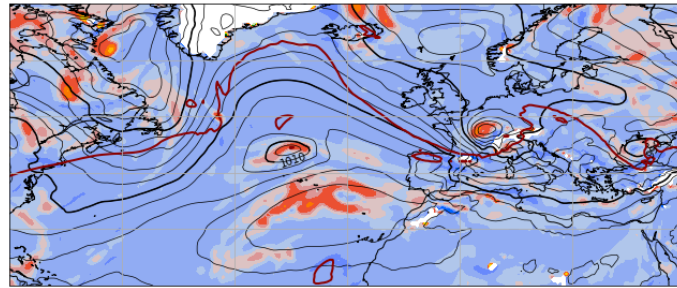
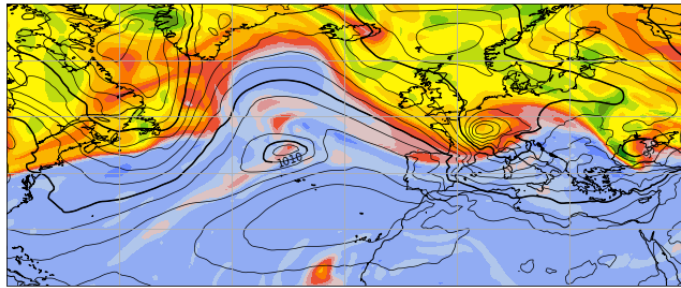
12 UTC on 27 December 1999



18 UTC on 27 December 1999

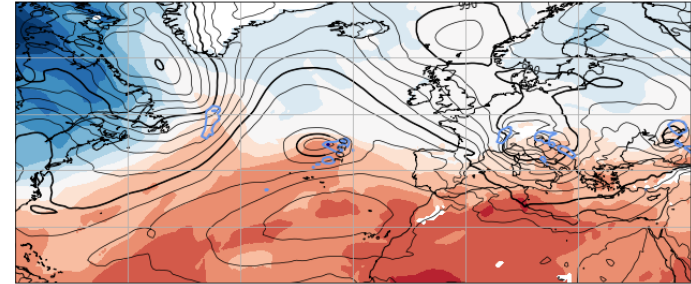
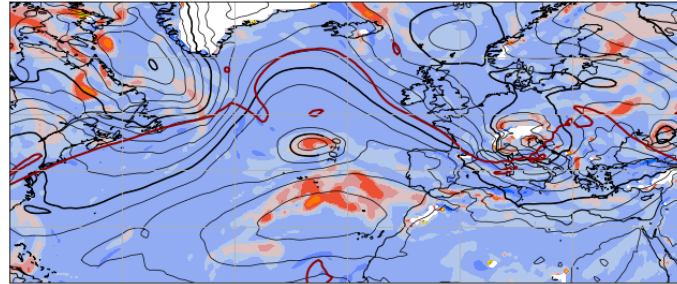
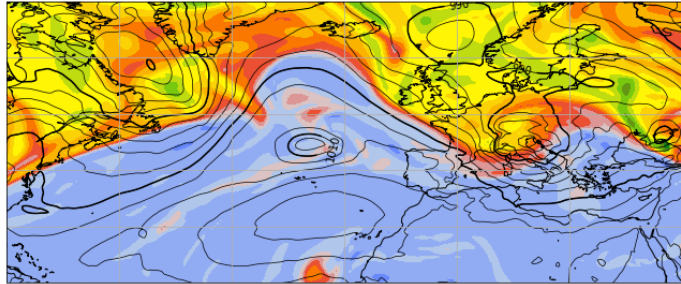


00 UTC on 28 December 1999



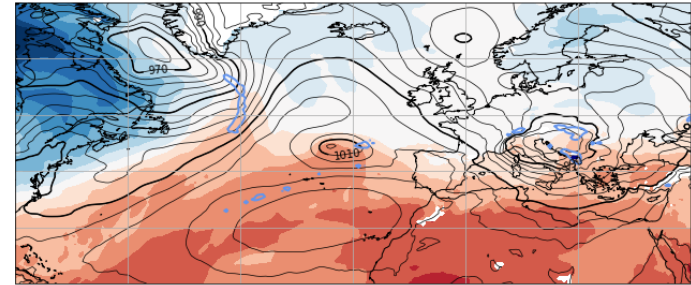
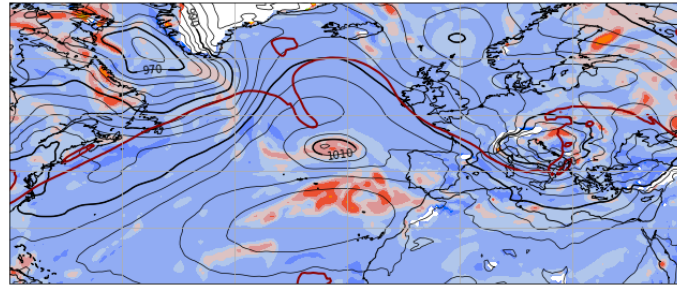
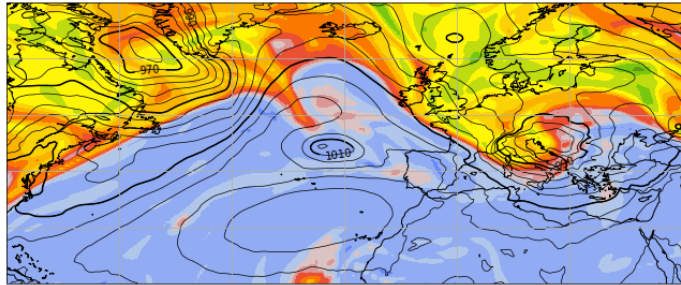
60°N
50°N
40°N
30°N

06 UTC on 28 December 1999



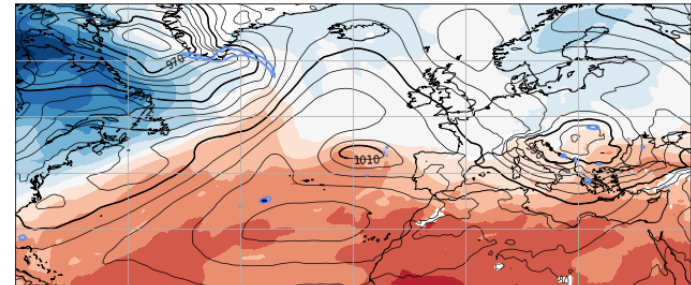
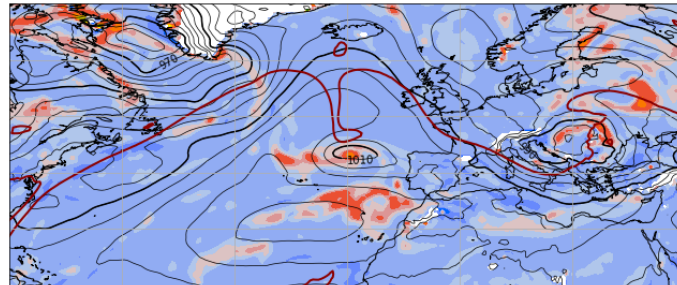
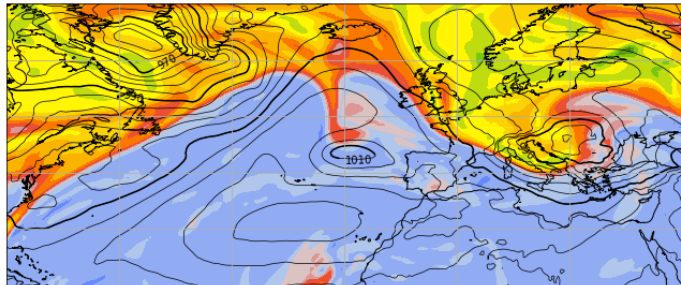
60°N
50°N
40°N
30°N

12 UTC on 28 December 1999

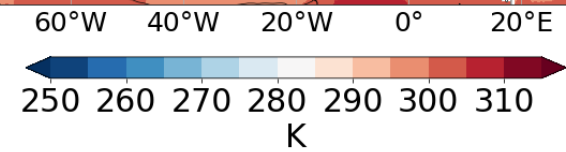
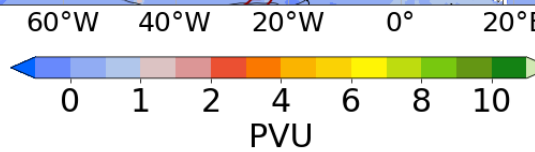
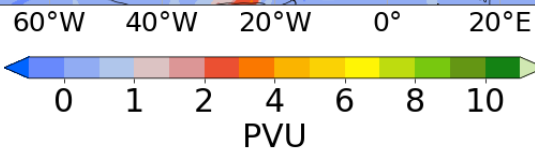


60°N
50°N
40°N
30°N

18 UTC on 28 December 1999



60°N
50°N
40°N
30°N



Lothar 06 UTC 25 Dec to 12 UTC 26 Dec 1999

