

Published Wednesday 21 August 2024

Storm Debi formed on Sunday 12 November 2023 and approached Ireland from the southwest early Monday. It tracked northeastwards across the country and exited quickly towards Scotland by late evening as it was caught up in the jet stream. The system was accompanied by heavy and thundery rain in places.

- The highest sustained (10-minute mean) wind speed was a northwesterly (310°) strong gale force 81 km/h (44 knots or 51 mph) on Monday 13 November 2023 around 03 UTC (3 am local) at Mace Head** (coastal), Co Galway.
- The highest gust (3-second) wind speed was a westerly (260°) 115 km/h (62 knots or 71 mph) on Monday around 04:40 UTC (4:40 am local) at Athenry, Co Galway.
- The lowest land-station hourly mean sea level pressure (MSLP) was 971.1 hPa on Monday 13 November 2023 around 6 UTC (6 am local time) observed at Ballyhaise, Co Cavan.
- The highest daily/24-hour rainfall total was 45.9 mm on Monday 13 November 2023 at Newport (coastal), Co Mayo (25% of its 1991-2020 Long Term Average (LTA)).
- The highest individual wave height was 10.0 m at Buoy M3 (off the Cork coast) and Buoy M6 (in the deep Atlantic) around 22 UTC (10 pm local).

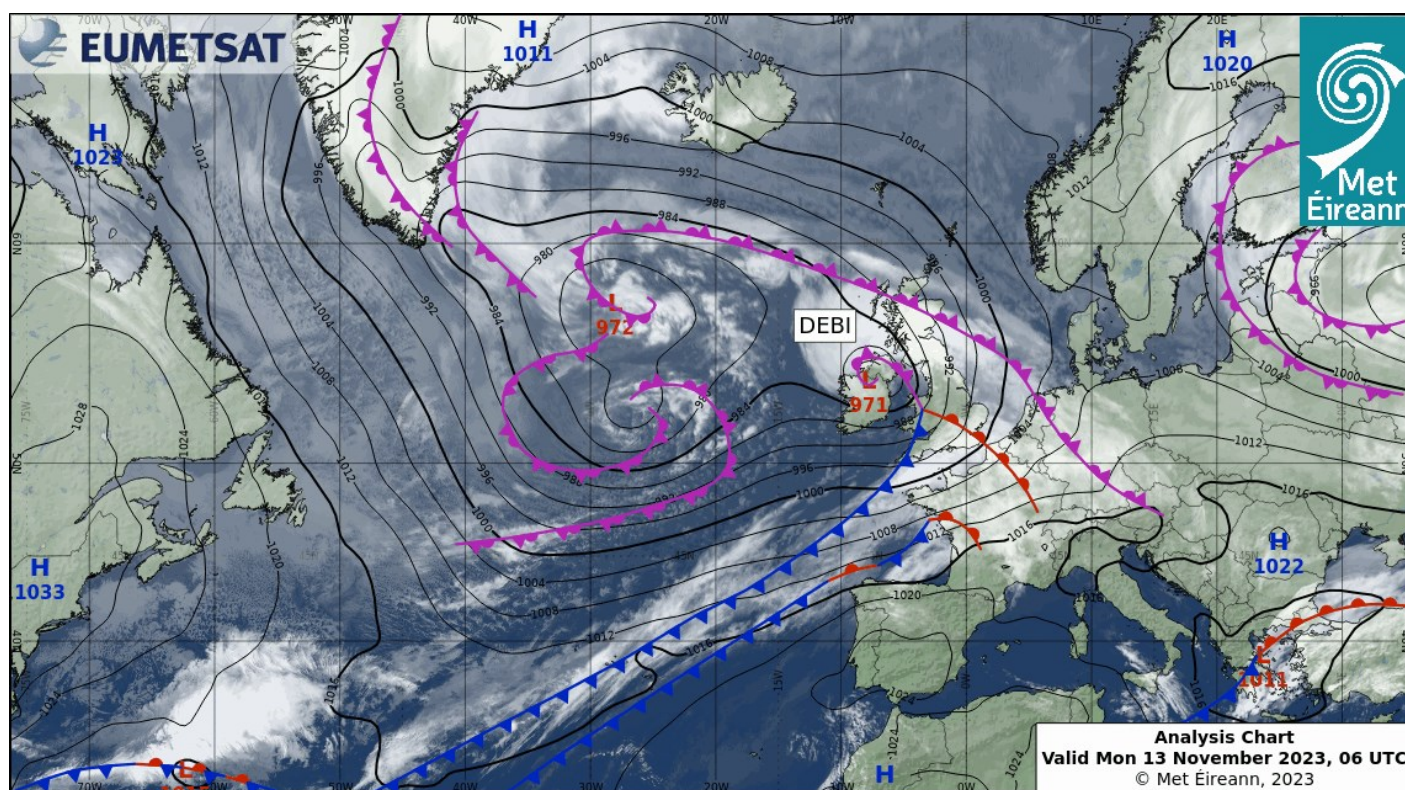


Figure 1. EUMETSAT Satellite and Analysis Chart at 06 UTC on Mon 13 Nov 2023

Sunday 12 November 2023

Wet and breezy day with rain arriving to northern areas followed by sunny spells and scattered showers from the southwest. A mix of clear spells and showers through the evening with mostly light to moderate south to southwest winds.

Monday 13 November 2023

Storm Debi moved northeastward across Ireland during the morning, accompanied by strong gale force winds. This brought heavy rainfall, which gradually shifted towards the Irish Sea by afternoon. Throughout the evening, strong winds persisted alongside widespread showers. Additionally, mist and fog patches formed in various locations during the evening and overnight.

Tuesday 14 November 2023

Ireland lay in a fresh to near gale force and gusty west to southwest airflow generated by a low pressure of 980 hPa centred to the southwest of Iceland. Showery troughs were embedded in the flow. Wet in the West, dry in the East. Showers throughout the day. Gusty winds along Atlantic coasts.

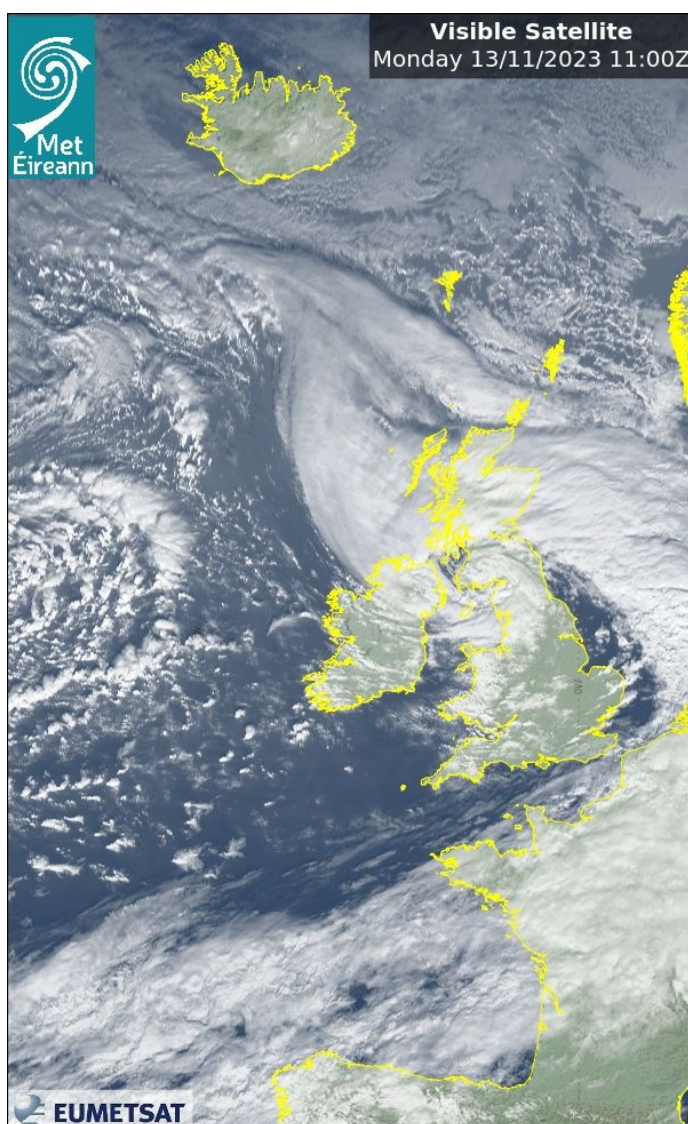


Figure 2 (Above left) visible EUMETSAT Satellite image on Mon 13 Nov 2023 at 11 UTC after the centre of storm Debi moved into the Irish Sea

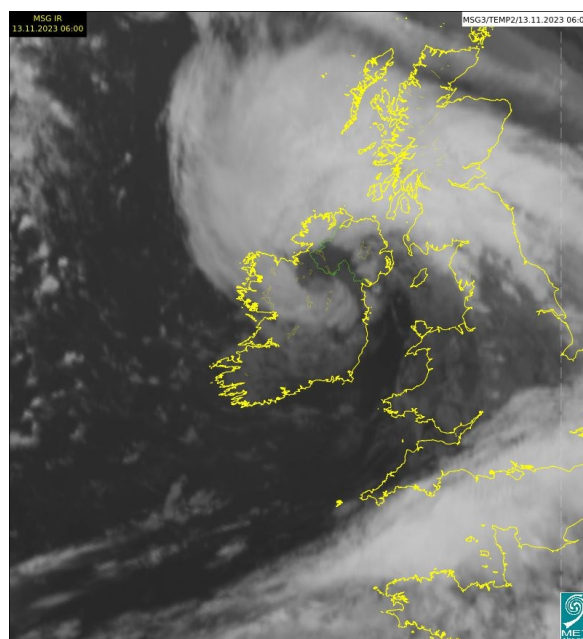


Figure 3. (Top right) Infrared EUMETSAT Satellite on Mon 13 Nov 2023 at 06 UTC when the lowest mean sea level pressure 971.1 hPa at Ballyhaise, Co Cavan was observed.

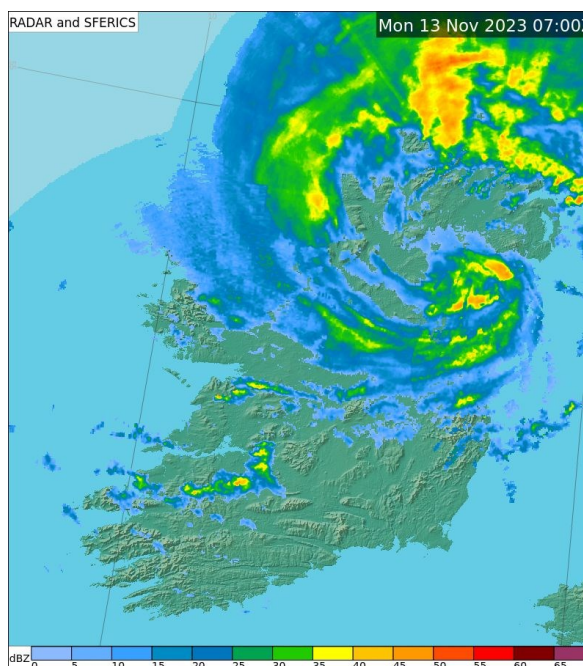


Figure 4. (Bottom right). On Mon 13 Nov 2023 in the hour ending 07 UTC when 9.5 mm of rain fell at Malin Head, Co Donegal

Mean Sea Level Pressure

The minimum hourly mean sea level pressure (MSLP) observed in Ireland during storm Debi was 971.1 hPa at Ballyhaise, Co Cavan around 06 UTC on Monday 13th. The mean sea level pressure dropped by 23.1 hPa at Ballyhaise, Co Cavan from 994.2 to 971.1 hPa.

Named Storm DEBI

Hourly Mean Sea Level Pressure (hPa) and Highest Gust Wind Speed

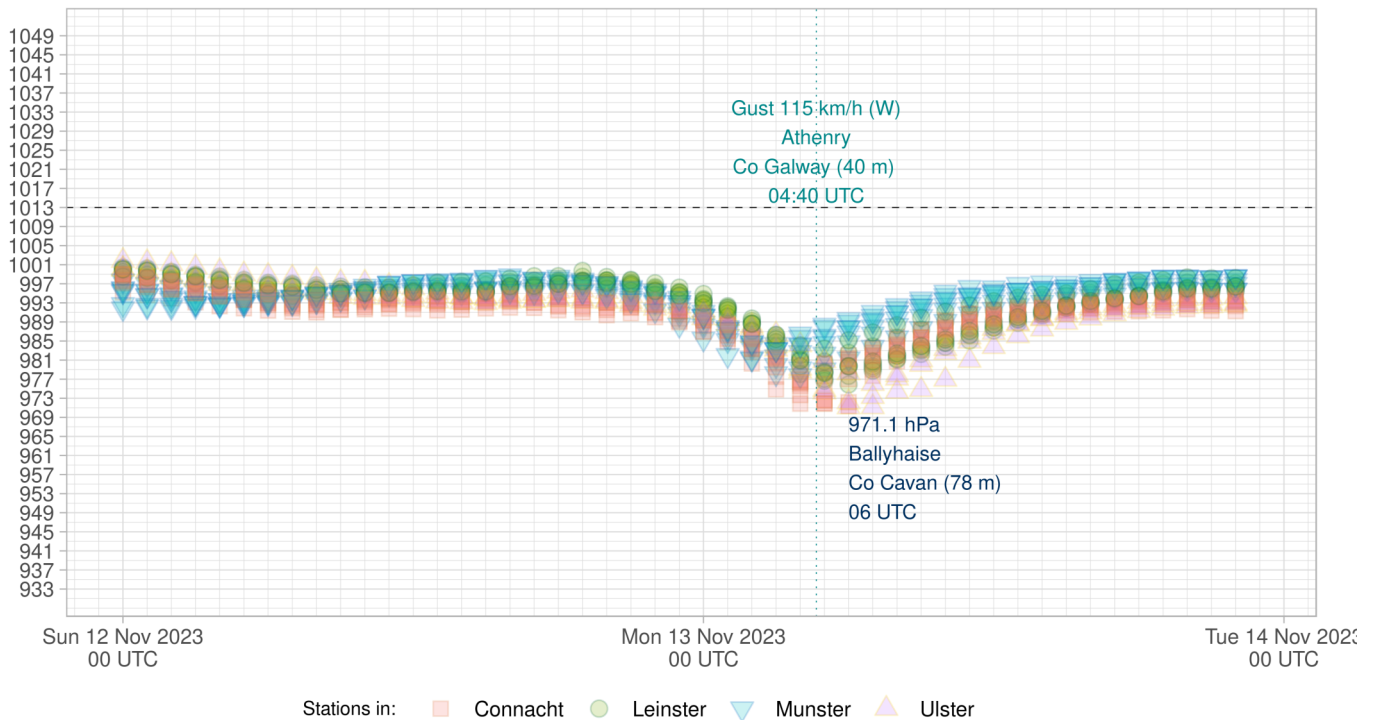


Figure 5: Hourly Mean Sea Level pressure (MSLP) by county (coloured by province) between Sun 12 and Tues 14 November 2023

Impacts

- **Power Outages:** ESB Power Check some 100,000 homes were without electricity on the morning of Tuesday 14 November 2023 ([ESB PowerCheck, 2023](#)).
- **Flooding:** Coastal flooding in parts of Co Galway reported ([Galway County Council, 2023](#)).
- **Travel:** On the morning of Monday 13 November, public transport services Dublin Bus, the Luas and Bus Éireann were disrupted in counties ([Transport for Ireland, 2023](#)).

Synoptic stations—highest wind speeds and rainfall totals

Table 1 contains wind speeds and rainfall observations for the SYNOPTIC stations. The sustained wind speeds are shaded by land [Beaufort scale](#).

Table 1. Extremes of wind and rainfall at synoptic stations

Station location	Sustained (10-min mean) Wind Speed	Date highest mean	Wind Direction Highest sustained	Gust (3-sec mean) Wind Speed	Date Highest Gust	Wind Direction Highest Gust	Highest Daily Rain (mm)	2-day Total Rain (mm)
Mace Head** (coastal) Co Galway	81 km/h Strong Gale Force (44 knots or 51 mph)	Mon 13 Nov 2023 03 UTC	310° (NW)	98 km/h (53 knots or 61 mph)	Mon 13 Nov 2023 0336 UTC	310° (NW)	18.2 mm Mon 13 Nov 2023	29.6 mm
Finner (coastal) Co Donegal	80 km/h Strong Gale Force (43 knots or 49 mph)	Mon 13 Nov 2023 07 UTC	280° (W)	100 km/h (54 knots or 62 mph)	Mon 13 Nov 2023 0742 UTC	280° (W)	22.2 mm Mon 13 Nov 2023	28.1 mm
Roches Point (coastal) Co Cork	78 km/h Strong Gale Force (42 knots or 48 mph)	Mon 13 Nov 2023 02 UTC	200° (SSW)	100 km/h (54 knots or 62 mph)	Mon 13 Nov 2023 0247 UTC	200° (SSW)	8.1 mm Sun 12 Nov 2023	15.3 mm
Malin Head* (coastal) Co Donegal	74 km/h Gale Force 8 (40 knots or 46 mph)	Mon 13 Nov 2023 08 UTC	70° (ENE)	93 km/h (50 knots or 58 mph)	Mon 13 Nov 2023 0753 UTC	80° (E)	30.5 mm Mon 13 Nov 2023	33.0 mm
Athenry Co Galway	70 km/h Gale Force 8 (38 knots or 44 mph)	Mon 13 Nov 2023 04 UTC	240° (WSW)	115 km/h (62 knots or 71 mph)	Mon 13 Nov 2023 0440 UTC	260° (W)	13.1 mm Mon 13 Nov 2023	24.8 mm
Knock Airport Co Mayo	70 km/h Gale Force 8 (38 knots or 44 mph)	Mon 13 Nov 2023 06 UTC	290° (WNW)	113 km/h (61 knots or 70 mph)	Mon 13 Nov 2023 0539 UTC	290° (WNW)	29.4 mm Mon 13 Nov 2023	42.6 mm
Shannon Airport (coastal) Co Clare	70 km/h Gale Force 8 (38 knots or 44 mph)	Mon 13 Nov 2023 05 UTC	230° (SW)	96 km/h (52 knots or 60 mph)	Mon 13 Nov 2023 0408 UTC	240° (WSW)	8.3 mm Mon 13 Nov 2023	13.6 mm
Sherkin Island (coastal) Co Cork	69 km/h Gale Force 8 (37 knots or 43 mph)	Mon 13 Nov 2023 02 UTC	230° (SW)	91 km/h (49 knots or 56 mph)	Mon 13 Nov 2023 0148 UTC	200° (SSW)	10.2 mm Sun 12 Nov 2023	14.7 mm
Casement Aerodrome Co Dublin	63 km/h Gale Force 8 (34 knots or 39 mph)	Mon 13 Nov 2023 06 UTC	230° (SW)	100 km/h (54 knots or 62 mph)	Mon 13 Nov 2023 0749 UTC	250° (WSW)	8.2 mm Mon 13 Nov 2023	10.9 mm
Cork Airport (coastal) Co Cork	63 km/h Gale Force 8 (34 knots or 39 mph)	Mon 13 Nov 2023 03 UTC	220° (SW)	87 km/h (47 knots or 54 mph)	Mon 13 Nov 2023 0232 UTC	200° (SSW)	11.6 mm Mon 13 Nov 2023	21.7 mm
Mount Dillon Co Roscommon	59 km/h Near Gale (32 knots or 37 mph)	Mon 13 Nov 2023 05 UTC	240° (WSW)	106 km/h (57 knots or 66 mph)	Mon 13 Nov 2023 0603 UTC	240° (WSW)	20.8 mm Mon 13 Nov 2023	28.5 mm
Dunsany Co Meath	59 km/h Near Gale (32 knots or 37 mph)	Mon 13 Nov 2023 07 UTC	230° (SW)	98 km/h (53 knots or 61 mph)	Mon 13 Nov 2023 0559 UTC	210° (SSW)	14.6 mm Mon 13 Nov 2023	21.3 mm

Table 1. Cont'd

Station location	Sustained (10-min mean) Wind Speed	Date highest mean	Wind Di- rection Highest sustained	Gust (3-sec mean) Wind Speed	Date Highest Gust	Wind Di- rection Highest Gust	Highest Daily Rain (mm)	2-day Total Rain (mm)
Claremorris Co Mayo	59 km/h Near Gale (32 knots or 37 mph)	Mon 13 Nov 2023 05UTC	270° (W)	93 km/h (50 knots or 58 mph)	Mon 13 Nov 2023 0505 UTC	290° (WNW)	32.3 Sun 12 Nov 2023	46.4
Valentia Ob- servatory (coastal) Co Kerry	59 km/h Near Gale (32 knots or 37 mph)	Mon 13 Nov 2023 01UTC	200° (SSW)	83 km/h (45 knots or 52 mph)	Mon 13 Nov 2023 0146 UTC	220° (SW)	9.3 Sun 12 Nov 2023	17.4
Gurteen Co Tipperary	57 km/h Near Gale (31 knots or 36 mph)	Mon 13 Nov 2023 04UTC	220° (SW)	91 km/h (49 knots or 56 mph)	Mon 13 Nov 2023 0450 UTC	200° (SSW)	10.6 Sun 12 Nov 2023	17.7
Mullingar Co Westmeath	54 km/h Near Gale (29 knots or 33 mph)	Mon 13 Nov 2023 05UTC	220° (SW)	98 km/h (53 knots or 61 mph)	Mon 13 Nov 2023 0618 UTC	230° (SW)	19.5 Sun 12 Nov 2023	25.5
Oak Park Co Carlow	54 km/h Near Gale (29 knots or 33 mph)	Mon 13 Nov 2023 06UTC	220° (SW)	80 km/h (43 knots or 49 mph)	Mon 13 Nov 2023 0531 UTC	220° (SW)	8.2 Sun 12 Nov 2023	13.7
Dublin Airport (coastal) Co Dublin	52 km/h Near Gale (28 knots or 32 mph)	Mon 13 Nov 2023 13UTC	260° (W)	85 km/h (46 knots or 53 mph)	Mon 13 Nov 2023 1229 UTC	260° (W)	11.1 Sun 12 Nov 2023	18.1
Ballyhaise Co Cavan	46 km/h Strong Breeze (25 knots or 29 mph)	Mon 13 Nov 2023 05UTC	140° (SE)	80 km/h (43 knots or 49 mph)	Mon 13 Nov 2023 0706 UTC	240° (WSW)	21.3 Sun 12 Nov 2023	27.6
Newport (coastal) Co Mayo	46 km/h Strong Breeze (25 knots or 29 mph)	Mon 13 Nov 2023 07UTC	280° (W)	74 km/h (40 knots or 46 mph)	Mon 13 Nov 2023 0619 UTC	290° (WNW)	45.9 Sun 12 Nov 2023	54.7
Johnstown Castle (coastal) Co Wexford	43 km/h Strong Breeze (23 knots or 26 mph)	Mon 13 Nov 2023 05UTC	230° (SW)	70 km/h (38 knots or 44 mph)	Mon 13 Nov 2023 0512 UTC	220° (SW)	14.2 Sun 12 Nov 2023	20.6
Belmullet (coastal) Co Mayo	39 km/h Fresh Breeze (21 knots or 24 mph)	Mon 13 Nov 2023 06UTC	280° (W)	54 km/h (29 knots or 33 mph)	Mon 13 Nov 2023 0727 UTC	290° (WNW)	24.2 Sun 12 Nov 2023	40.2
Moore Park Co Cork	33 km/h Fresh Breeze (18 knots or 21 mph)	Mon 13 Nov 2023 02UTC	200° (SSW)	57 km/h (31 knots or 36 mph)	Mon 13 Nov 2023 0255 UTC	200° (SSW)	13.0 Sun 12 Nov 2023	15.9
Markree Cas- tle Co Sligo								29.7
Phoenix Park Co Dublin								11.3

Definitions

- Sustained (or mean) wind speeds are an average of 10-minute wind speeds.
- Gust wind speeds are an average of 3-second wind speeds.
- Unless otherwise stated daily means midnight to midnight UTC.
- Long-Term Averages (LTAs) and 'normal' refer to the observations being averaged over the period 1991-2020.
- Beaufort Scale available at www.met.ie/forecasts/marine-inland-lakes/beaufort-scale
- Marine area buoy maps and definitions available at www.met.ie/forecasts/marine-inland-lakes/sea-area-forecast-terminology

** Malin Head, Co Donegal's wind speeds are observed (using an anemometer) at a non-standard height of 23 m while all others are at 10 m. This will cause Malin Head's wind speeds to be higher in a strong air flow.*

*** Mace Head, Co Galway's anemometer is situated above exposed rock at the coast line.*

This report is based on the observations from Met Éireann's weather and climate stations and data available up to the publication date. For more information, please contact Met Éireann's Climate Services Division: enquiries@met.ie or <https://www.met.ie/about-us/contact-us>.