

## Thematic investigation concerning how climatic changes affect aviation in Northern Norway

There are indications that changes in the climate have led to more demanding weather conditions for flight operations in Northern Norway during the winter season. The Norwegian Safety Investigation Authority is launching a thematic investigation in collaboration with key players in aviation to systematically investigate the issue. Furthermore the investigation seeks to identify if measures are required to maintain an acceptable level of safety.

On Sunday 12 February 2023, there were major weather challenges at Tromsø Airport. SAS, Widerøe and Norwegian all experienced incidents related to intense rain showers (CBs) and strong winds. Three aircraft from Widerøe were struck by lightning and reported severe icing. One aircraft from Norwegian was struck by lightning and had a windshear warning just before landing as well. SAS had an incident during approach where an aircraft received a windshear warning before landing and made a go-around. They experienced strong vibrations in one engine and chose to declare mayday to get priority landing due to planned snow removal of the runway.

The Norwegian Safety Investigation Authority (NSIA) has assessed these incidents individually and, viewed in isolation, none were classified as serious incidents. Overall, however, the events at Tromsø Airport this day and other recorded events during the winter season 2022/2023 indicate that the weather has become more challenging for flight operations in Northern Norway in particular.

The NSIA therefore wants to launch a thematic investigation related to changes in climate and which weather-related challenges this may entail. The investigation will be carried out in line with the NSIA's mandate, law and regulatory framework.

The NSIA has involved the Norwegian Civil Aviation Authority, the Meteorological Institute, Avinor, SAS, Norwegian, Widerøe, Avincis Aviation and the Royal Norwegian Air Force. Planned start date for the project is 5 September 2023.

### Status of investigation

The thematic investigation is approaching its first important milestone. During October 2024, the Norwegian Meteorological Institute will deliver its analysis of climatic changes in Northern Norway over the past 30 years and the weather-related significance this has had in the region. In

addition, an analysis of expected developments in the weather in Northern Norway up to the year 2100 will be part of the analysis.

When the analysis is in place, the NSIA will gather all the actors involved in the project to discuss the findings and any measures to maintain an accepted level of safety.

Latest update: 16.09.2024.

## Facts

Location	Northern Norway, north of the polar circle
Occurrence date	12.02.2023
ICAO Location indicator	ENTC
Operator	SAS, Norwegian, Widerøe, Babcock and Norwegian Air Force
Registration	Temaundersøkelse
Meteorological conditions	IMC
Type of occurrence	Incident
Type of operation	Scheduled air transport / SAR/ambulance
Category of operation	Heavy, aeroplane (> 10 000kg) / Medium, aeroplane (5 700 - 10 000kg)
Aircraft category	Landplane, Multi-engine, Single-engine, Turbofan/Turbojet, Turboprop/turboshaft
FIR/AOR	ENOB (Bodø FIC/OFIR)

*NSIA conducts its investigations for the sole purpose of improving transportation safety. The object of a safety investigation is to clarify the sequence of events and root cause factors, study matters of significance for the prevention of transportation accidents and improvement of transportation safety, and to publish a report with eventually safety recommendations. NSIA shall not apportion any blame or liability. Use of information from this investigation for any other purpose than for improvements of transportation safety shall be avoided.*

