



December 3, 2025

Japan Airlines Co., Ltd.

JAL Foundation

Ministry of the Environment, Japan

Meteorological Research Institute, Japan Meteorological Agency

National Institute for Environmental Studies (NIES)

JAMCO Corporation

Aircraft-Based Atmospheric Observation Project "CONTRAIL" Transitions to Next-Generation Aircraft

- Commencement of Atmospheric Observation Using Boeing 787-9 -

Japan Airlines Co., Ltd. (hereinafter "JAL"), JAL Foundation, Meteorological Research Institute of the Japan Meteorological Agency (hereinafter "MRI"), National Institute for Environmental Studies (hereinafter "NIES"), and JAMCO Corporation (hereinafter "JAMCO") jointly announce that the aircraft-based atmospheric observation project, "CONTRAIL" (*1) (hereinafter the "CONTRAIL Project"), will commence atmospheric observations using the Boeing 787-9 aircraft starting December 4, 2025.

The CONTRAIL Project is a collaborative research initiative that utilizes commercial aircraft to observe greenhouse gas concentrations (mainly carbon dioxide (CO₂)) and their isotope ratios in the upper atmosphere at wide spatial scales and high frequency. The aim is to elucidate the global carbon cycle and climate change mechanisms. Continuous upper atmosphere CO₂ observations using commercial aircraft (*2) represent the world's first attempt of this kind. Data collected through the CONTRAIL Project are highly valued by researchers both domestically and internationally, contributing significantly to global research efforts.



Boeing 787-9 (Registration JA868J) Modified to CONTRAIL Specifications



Since the project's inception, JAL's aircraft and network have been leveraged to measure greenhouse gases in the upper atmosphere. As JAL's main aircraft Boeing 777 are gradually being phased out, the scope and frequency of atmospheric observations has decreased. Now, the development and aircraft modification for two observational instruments — the Continuous CO₂ Measuring Equipment (CME) (*3) and the Automatic Air Sampling Equipment (ASE) (*4) — for installation on the next-generation Boeing 787-9 have been completed. Additionally, modifications of four more aircraft are planned within FY2025, which will further strengthen the observation system. The operation of the JAL 787-9 also allows resumption of observations over India and equatorial regions, and for the first time, observation over the Middle East is expected.

JAL participates in the CONTRAIL Project as part of its "Eco-First Commitment" (*5). Moving forward, the five parties will continue contributing to understanding of climate change mechanisms and global environmental protection through the collection and analysis of valuable atmospheric data enabled by aircraft regularly flying broad regions, with strong teamwork and support from the Ministry of the Environment.

(*1) CONTRAIL: **C**omprehensive **O**bservation **N**etwork for **T**race gases by **A**irliner

<https://www.cger.nies.go.jp/contrail/>

(*2) Continuous high-frequency data acquisition using international scheduled passenger flights.

(*3) CME: Continuous CO₂ Measuring Equipment

(*4) ASE: Automatic Air Sampling Equipment

(*5) "Eco-First Commitment – Initiatives for Global Environmental Conservation by Leading Environmental Companies"

Details: <https://www.jal.com/en/sustainability/environment/environment-management/ecofirst/>

■Achievements of the CONTRAIL Project to Date

- The project began in 1993 with JAL, the original JAL Foundation (now JAL Foundation), and MRI starting atmospheric observations using scheduled passenger flights. Since 2005, NIES and JAMCO have also participated to promote the project.
- Using CME and ASE mounted on JAL's Boeing 747-400 and Boeing 777-200ER / 300ER aircraft, over 30,000 atmospheric data points have been collected through approximately 22,000 flights across 84 airports worldwide as of April 2025.
- Beyond CO₂, upper atmosphere samples are brought back for analysis of other greenhouse gases on a global scale, such as methane (CH₄) and nitrous oxide (N₂O).



■Overview of the CONTRAIL Special Livery Aircraft

Aircraft: Boeing 787-9 (Registration: JA868J) (For now, only one aircraft will have the special livery.)

Routes: Mainly routes between Tokyo (Narita) and the United States, Germany, Malaysia, etc.

Operation period: From Thursday, December 4, 2025 ※First flight: JL407 (Narita – Frankfurt)

Special Livery image:



Featuring the new CONTRAIL logo, this aircraft will fly to airports around the world, serving as a symbol to raise global awareness of our environmental research efforts.