NWTF Researcher Mobility & Open Access

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National Wind Tunnel Facility: Enabling Researcher Mobility and Open Access

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NWTF

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Introduction to NWTF

- A consortium of 24 wind tunnels across 12 UK universities .
- Established in 2014 to enhance UK capabilities in experimental aerodynamics and fluid mechanics .
- Aims to provide open access to its facilities for UK-based researchers .

NWTF's National Network

- London
  - IC, City
- Oxford
- Surrey
- Cranfield
- Cambridge
- Southampton
- Bristol
- Manchester
- Glasgow
- Birmingham
- Loughborough
- Liverpool

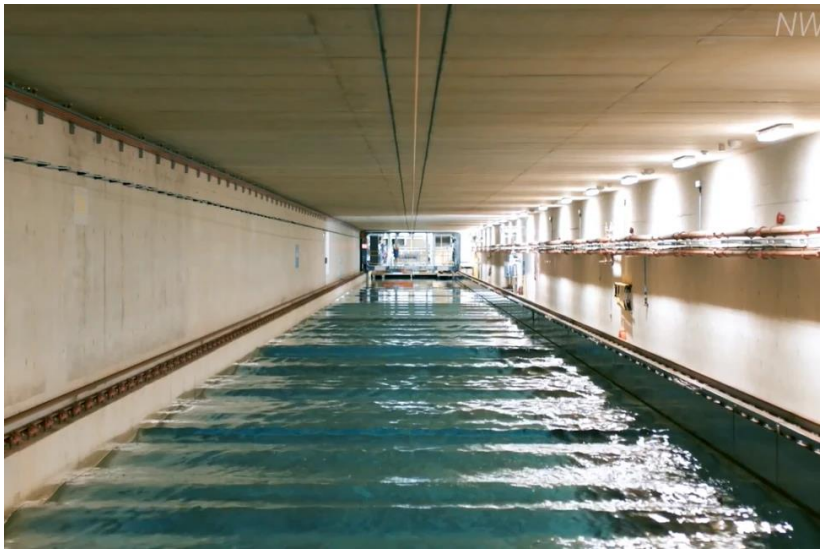
The Need for Researcher Mobility

- Enhances **inclusivity** by making facilities accessible to academics from all UK institutions.
- Reduces **bureaucracy** for researchers accessing specialised resources, especially for proof-of-concept work.
- Fosters **knowledge exchange** and **collaboration** across different research groups and universities.
- Improves **connectivity** between researchers and diverse facilities, regardless of location.
- Provides access to **specialised equipment** not available at their home institution.
- Strategically aims to nurture talent, widen access, and maximize the impact of NWTF resources.

Driving Researcher Mobility

- Dedicated **Researcher Mobility Initiative** to actively promote the movement of researchers and the sharing of ideas.
- A key component – **free access** to NWTF facilities for a set number of days each year.
- Specifically targeted at **early-career academic researchers**, including PhD students and Postdoctoral Research Associates (PDRAs), who are based in the UK.
- Eligibility – researchers must be applying to use wind tunnel facilities located **outside of their own institution**.
- While facility access is free, researchers or their institutions are responsible for covering travel, accommodation, and experimental consumables.

Driving Researcher Mobility: Some Case Studies



- **University of Plymouth:** Accessed the towing tank facility at the **University of Southampton** via the Free Access Scheme for experiments on floating wind turbines.
- Gathered crucial data for validating mathematical models

Driving Researcher Mobility: Some Case Studies

- **Wrexham University:** Accessed the RJM Tunnel at the **University of Southampton** via the Free Access Scheme
- Studied the **optimization of rubber consumption**

Driving Researcher Mobility: Some Case Studies

- **Loughborough University:** Accessed the Human-flow Interactions facility at the **University of Manchester**
- Aerodynamics in Para-Sport

Driving Researcher Mobility: International Collaborations

Birmingham:

- Researcher from Chinese Rail Company working on close running rail vehicles.
- Researcher from Lanzhou Jiaotong University working on trains passing through tunnels.
- Researcher from Japanese Rail Technical Research Institute working on acoustic barrier design.
- Researcher from the Railway Safety and Standards Board working on railway aerodynamics. (2023)
- Researcher from Ukraine using ABL tunnel to look at pedestrian comfort (2023)

Bristol:

- French and German researchers have used the anechoic tunnel
- An Australian team used the facility
- Joint research activities with major international institution for cross-checking facilities
- Researchers from Christchurch University, New Zealand
- Researchers from University of the Witwatersrand, South Africa
- Researchers from KTH – Sweden

Driving Researcher Mobility: International Collaborations

City:
- Researcher from University of Sao Paulo used the Low Turbulence Tunnel (2024)
- Researcher from University of Calgary will be using the Low Turbulence Tunnel in August-September 2025.

Cranfield:
- 2 x ESTACA France
- 1 x University of Orleans, France

Imperial:
- Dr Jeremy Basley (University of Valenciennes) – Transpiration Cooling

Loughborough:
- Researcher from Chalmers
- Researcher from Sheffield

Manchester:
- Researcher from Shanghai JiaoTong Univ, China
- Researcher from ND University of Malaysia
- Researcher from University of Padova, Italy

Driving Researcher Mobility: International Collaborations

Oxford:
- University of Queensland ‘Intake unstart testing’
- University of Queensland - ARC in turbulence measurements

Southampton:
- University of Adelaide researchers using the RJ Mitchell tunnel
- KTH Royal Institute of Technology using the RJ Mitchell tunnel

Surrey:
- Collaborative dispersion simulation work with ECL (France)
- FFI, Norway
- FoI, Sweden

Championing Open Access

- Access based on peer-reviewed excellence (standard practice for national facilities).
- Wide range of universities involved demonstrates broad accessibility.
- Funders (EPSRC, UKRI, EU Horizon) often mandate open access publications and data, which NWTF usage supports.
- NWTF offers 10% of on-time to external users
- NWTF as a platform for generating shareable knowledge.

NWTF as a Catalyst

- NWTF is clearly more than just tunnels.
- Connecting diverse expertise and enabling shared access to world-class facilities - NWTF significantly strengthens UK research and innovation.
- NWTF is a cornerstone investment, ensuring the UK remains at the forefront of experimental aero fluid dynamics through collaboration and open science.