



Dedicated to innovation in aerospace

ace2space



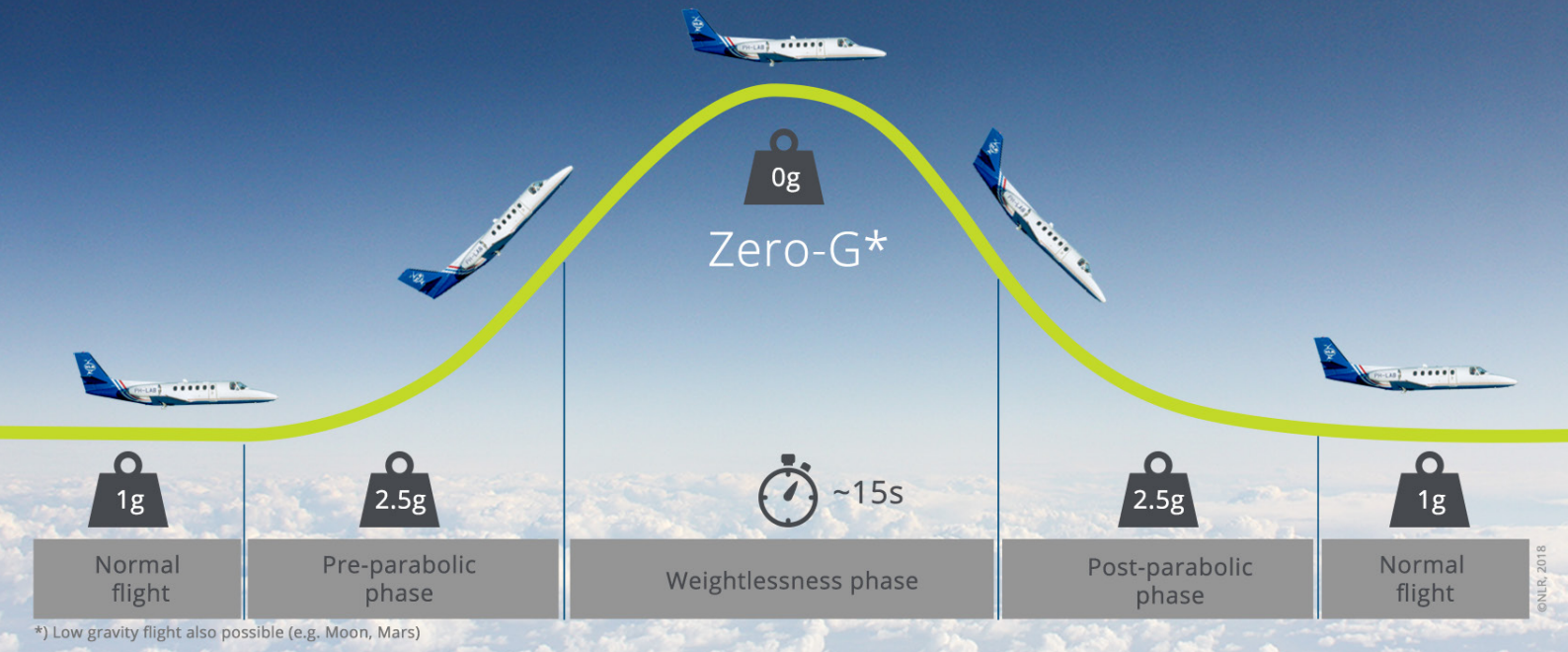
How parabolic flight can be affordable & flexible

PRODUCTS & SERVICES



“Space-bound experiments ...
...for earth-bound prices!”

What is at stake is the flight testing of your application under zero or low gravity conditions in a flexible and affordable test environment. And that is exactly what we are offering. In *ace2space*, Royal NLR and Delft University of Technology (DUT) operate a business jet type research aircraft from Rotterdam The Hague Airport. With this relatively small aircraft, we combine high-accuracy parabolic flight performance with low cost when compared to larger transport aircraft.



*) Low gravity flight also possible (e.g. Moon, Mars)

WHAT YOU NEED

- Exposure of your application to parabolic flight:
 - Zero gravity
 - Low gravity (e.g. Mars or Moon)
- Decisions by yourself on number of manoeuvres/flights, flight dates/times, etc.
- Relatively limited cabin space (cabin diameter of 1.40m by about 4m long)
- Relatively limited number of people in the cabin (7 or less)
- Flight abort when your application inadvertently fails
- Easy access to flight facility
- Lowest cost per parabolic manoeuvre

WHAT WE DELIVER

- Accommodate your application or research set-up in our aircraft
 - Several (glove)boxes are available, which can be readily used
 - Free-floating experiments are also possible
- Modify our aircraft if required (design, manufacturing, certification)
- Instrument our aircraft to collect flight test data, incl. video
- Execute zero or low (e.g. Mars or Moon) gravity flights safely and efficiently
- Operate from Rotterdam The Hague Airport or elsewhere
- Provide guidance/support during all parts of entire project cycle

OUR CAPABILITIES

Unique aspects

- Low cost due to relatively small size of our aircraft compared to larger air transport category aircraft
- Superior performance in parabolic flight: inertia effects are much smaller than in larger aircraft, as in our aircraft your experiment will always be very close to the aircraft center-of-gravity
- Single-customer orientation allows for:
 - customer decision on number of flights, number of parabolic manoeuvres per flight, time in-between flights and flight abort whenever required.
This all saves valuable time and money
 - optimal g-level at location of your set-up
 - securing confidentiality requirements
- Excellent flexibility in (re)scheduling of flight(s) and short time between project request and flight execution

Aircraft

We operate a Cessna Citation II research aircraft, which has been modified for flight testing purposes. The cockpit is equipped with a g-force indicator and flight guidance is available to accurately fly preselected target levels of gravity.

Topics

Topics that can be performed include physical and life sciences. Among topics covered in the past are: Sensors & systems, (fluid)physics, mechanics (wing bending), physiology, education (demonstrations), flight mechanics (optimisation of parabolic flight) and training (pilot flying skills). We have accumulated approx. 1,000 parabolic manoeuvres over 25 years.

Organisation

Due to the nature of our operations, our continuing airworthiness- and design organisations are unique. Our research aircraft operates in accordance with Part OPS. For the design, classification and approval of modifications, NLR holds an approval based on Part 21, while our maintenance organisation is Part 145 approved. Parabolic flight manoeuvres are approved by the aviation authority. NLR is flying test aircraft since 1920.

Personnel

Our experienced team of experts consists of qualified people like test pilots, flight test (instrumentation) engineers, R&D engineers, certifying staff, technicians and support personnel.

BENEFITS

- Affordable and flexible zero- and low gravity flight services
- Parabolic flight performance superior to larger aircraft, but with low operating cost of smaller aircraft
- Central position of single customer in defining and performing of flight(s)
- Easy access to aircraft at Rotterdam The Hague Airport or elsewhere
- Flexible (re)scheduling of flight(s)

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