

WakeNet Workshop 5-7 February 2007
As it was heard report

Stakeholder expectations

This report documents the post-it notes and categorizations written by participants during the facilitated session on 5 February 2007. Any clarifications are written in square brackets[.].

Facilitators:

Garfield Dean

Lawrence Brom

Dirk Schaefer

Nigel Sylvester-Thorne

Group A

R&D to implementation:

A systematic task dedication to R&D up to the people running the system (controller, pilots)

A better common understanding of the whole “bottleneck” (runway capacity, complexity);

Most interested in:

- Concept development and performance evaluation by simulation,
- Validation of simulation results by field trials.

Detained modelling of Wakenet concepts to achieve performance evaluation and capacity increase results.

Interested in:

- Modelling of approaches eg TBS, Crosswind, CSPR;

We can provide;

- Capacity results based realistic and detailed ATC simulations.

Development of ATCO Wake separation mitigation tools.

Understanding of wind conditions which negate requirement for Wake separation (arr and dep).

Innovation

.... Initiative to develop airborne vortex detection (also in IMC).

We would be interested in, and can contribute how data link communication between Ac and ground and Ac and Ac can support and even increase objectives and issues (University of Salzburg).

Safety

.... Wakenet should enable the setup of mandatory reporting system for Wakenet encounters.

Make sure that all flight safety concerns are dealt with.

.... A definition of a wake turbulence encounter.

Revision and updating of ICAO wake separation standards.

Research - fully support any proposal for a safety case.

Global

Fostering of international cooperation.

That global application with global standards enhance safe operations.

To be a forum for international exchange.

Coordinated research – optimisation and funding.

Link to ICAO

Stakeholder Communication

Information sharing across Europe.

Information sharing globally.

I expect more operational people to come.

To present new subjects from WV R&D.

To help identify expectations and needs.

To be an instrument for stakeholder communication.

To have a dialogue between ops people and R&D.

Being updated on recent research results and state of the art.;

Meet people from organisations involved in the wake vortex field.

Group B

Stakeholder Involvement:

This expectation is mainly about...

- **who should be involved?**
- **who is willing to participate?**
- **what does involvement look like?**
- **attract more pilots & ATCos**
- **getting feedback on operational concepts**

(post-its linked to this theme:)

big participation of ATCos and pilots

stakeholder involvement early in the research process; should involve a level of agreement

to know what are ANSPs/APOs interests in WV procedures

more operational participants than researchers

to get an overview on what ATC, ATM and other stakeholders are expecting from researchers

as a researcher to exchange/share with all the involved people our expectation

Investigate Implementation Challenges:

This expectation is mainly about...

- **funding/resources**
- **is safety/HF fully considered?**
- **what areas are not being researched?**
- **what areas are being researched?**
- **how would concepts be presented to pilots & ATCos**
- **who is working on it?**
- **end user input into concept development**
- **what is the involvement of industry?**

(post-its linked to this theme:)

indication where research is missing

safety; scientific proof that it is safe to change existing standards

I want to be convinced how proven safety is maintained

How-to: the idea of setting up a programme committee with members from several

institutions/companies worked extremely well during Wakenet 1 + 2

evaluate implementation & validation assumptions related to human workload

implementation of sound ConOps in shadow mode at airports

compile information related to separation minima and the impacts in human factors and safety

end-user input into concepts development

to find applications and promote LIDAR technology

who is working on Visualization of Time-based separation and what solutions are possible?

gain knowledge of (and perspective from) global research and implementation beyond my individual involvement

to know what intentions the E. Commission has in wakenet funding / implementation

to facilitate understanding of users, providers, regulators, ... about WV impact on safety and capacity

Exchange between Projects:

This expectation is mainly about...

- **who facilitates collaboration between projects?**
- **operational results**
- **implementation plan (common)**
- **exchange of things that are not working**

(post-its linked to this theme:)

transferring those proposals in separation minima reduction in operational cases for increasing capacity
 to have an overview on what industry, ATC, ATM,... are working on today and in the future
 to provide results from RESET project about what can be done with wake vortex in terms of separation
 proposals or advances in wake vortex research to transfer to RESET project
 to share success and understand areas of lack of success
 to identify potential areas for collaboration
 identify new opportunity for collaboration

Conference Organization:

This expectation is mainly about...

- **current state of implementation**
- **presentations clear & understandable**
- **mechanisms to involve / bring on board newcomers (spread conclusions)**

(post-its linked to this theme:)

How-to: not in Brétigny

How: add focussed break-way group time to discuss a focus area. Each group presents results of discussion to entire group

opportunity to collaborate informally during breaks on details from presentations

How: keep past practice of assignment of individual to take notes and to overall assessment of progress toward objectives

(at end of Wakenet)

concise and interesting presentations of progress

seed for forming new projects

forum where state-of-the-art wake vortex behaviour modelling can be openly presented and discussed

Identify Most Promising Projects:

This expectation is mainly about...

- **how to provide insight into most promising concepts?**
- **providing insight into what's holding back progress (bottlenecks)**

(post-its linked to this theme:)

provide insights in most promising concepts

to find a basis for launching projects

summary of the bottlenecks in research so far – what is holding back progress?

a forum for discussions and communication of activities, ideas and needs of all stakeholders

independent of specific projects

to obtain feedback from what other projects are doing in terms of how wake vortex affects separation minima

Information Exchange:

This expectation is mainly about...

- **setting the context for every presentation = framework**
- **more info on exchange between wakenets (Europe, US, Russia)**
- **opportunity /promote better networking**
- **summarize EUROCONTROL plans on wake vortex**

(post-its linked to this theme:)

sharing of concepts and research across the world. This should preclude one of a kind systems.

to understand what all of the different WV projects are doing

need more detail on context for each project, e.g. what you have done to get where you are now; where you are now; what is your next milestone; what is your timeframe to objective

exchange of info

information exchange among stakeholders

exchange of (new) ideas to improve capacity in a safe way

exchange of ideas between EU – USA – Russia (and Asia?)

networking

to know EUROCONTROL plans in WV research and implementation

discuss key operation concepts with attendees

no detail so far on the kind of investments that might be needed from ANSPs and airports

to learn about the state-of-the-art in the WV area

to get feedback on own work

to get inspired by solutions from other partners

increase understanding of researchers on the needs of the ATC community

an idea how to keep Wakenet-E attractive for researchers (if not funded by EU)

update on activities that have progressed since last Wakenet

to keep contact with other stakeholders to exchange results about wake vortex studies

to clarify what we know and identify what we don't know about WV behaviour

find a strength in someone else's program to complement a weakness in mine

a chance to interface with others and discuss details of the projects/problem

to critically discuss wake-related issues

Group C

Meeting Logistics:

Not in Bretigny

A Nicer Conference Room – this one is really 3rd world :-)

Bad Chairs

Wayne Bryant must wear ties

Consider Different ATM Environments:

En-Route

Higher efficiency in TMA operations

Wakenet will favour co-operation and co-ordination between airports

Solutions at other airports

Higher efficiency in airport operations

Reduction of environmental impact on landing and departure

Work Planning and International Co-ordination:

Information/discussion on what needs to be done to implement a new procedure

To have some ideas or topics for future work on the wake problem

selection of most promising ideas for further projects

What are the next steps

To avoid duplication of effort

Where the better co-ordination would be useful to avoid repetition and to gain time

Ensure, to the extent possible, that:

- existing know how and experience is used to a maximum
- the wheel is not being re-invented

Identify goals and outline milestones

Address Helicopter WV

Focus on Safety:

To establish safety as a driver

Initiatives to build enhanced ground based safety nets with a wake vortex encounter advisory.

Safety risk management principles will be foremost in priority over capacity/ efficiency

Safety validations before implementation. Demonstrations do not necessarily mean that implementations will be safe

Make it real:

Establish reporting and data collection

measure “hard” data

Open solutions and research vs proprietary data

Integration of ATM concepts with other modernisation programmes + concepts (ADS-B, RNP, Net Centric Ops,...)

Bring theory and operations together as soon as possible to challenge results

Understand the “real” issues

Change from theory to practical testing as soon as possible

Real debate of real issues – Open and Honest

Be the initiator for wake simulations and real life testing

What are the results obtained in the validation of new concepts

Useful results for operations
workshops organised for each Ops concept amongst stakeholders
To learn about real operational issues in Europe
Focus on WV work leading to operational improvement
Understand the needs and propose physical sensors Lidar, Radar, Acoustic
Favour Development of Sensor Technologies (wind and Wake)
Support co-ordinated sensor trials on European Airports
Validation objectives should be baseline of all projects

Stakeholder Views and ROI:

View the different side of view from the stakeholders
Getting feedback from stakeholders (for better potential future users)
Stakeholder values will be honoured and not pre-judged
Get feedback on FAA and NASA research and implementation programs in wake
Reconnect with operators, users and researchers.
Show financial (\$/Euros) benefits for industries/ stakeholders.
Be the Motivator for investments (R+D)
Communication of quantification of benefits from reduced wake vortex strength (reduced separations).

A Common View:

Global solution set development, vice different procedures/rules for different airspace (Wake Hazard does not know borders)
One project (unique) across different countries (unique concept elaborated and validated in different places)
Encourage cross border (global) Involvement
Form a wake vortex working group in ICAO
Foster new ideas promoting the problem decision
Promote common and agreed methodology of modelling WV
Help to find a common view and model of wake vortex.

Networking:

To make connections with European colleagues in wake researchers
Exchanging information with other leading people in the field of wake turbulence
Meeting people working on wake turbulence who I would not meet elsewhere
Getting to know specialist in that topic
Adequate time to network
Broaden international co-operation.

Communication Information Exchange:

Line controller and line pilot participation in any -> all levels of information sharing (stakeholders are partners, not checklist items)
Communication and sharing of ideas
Communication and info sharing between WV related activities
Communication of ongoing research and developments
Communication of results of project through common interface
Open exchange of information (sharing data, reports, etc)
Exchange of information
A way that I can "contribute"
Make all stakeholders aware what is going on

More interaction with airports

Discussion on “acceptable wake encounter”

Learn about European wake research

Be updated

Clear update on “Programs”

Learn about ongoing and planned wake researchers

Learn about European operations limits imposed by wake standards

Group D

Forum:**This topic is about**

- **Communication**
- **information sharing**
- **Networking**
- **Knowledge Improvement**
- **Task Forcing (creating Task Forces)**

(post-its linked to this theme:)

Special stakeholder meetings/workshops

To gain/share knowledge and experience

Gain a better understanding of wake vortices

Detailed information about current Wake Vortex (WV) research

A one stop shop for WV expertise

Understand who is working in which area of WV

What groups are involved and who is working on what areas

Forum to discuss WV issues

Knowledge sharing

Choose to meet face to face with others working on similar work

Get an overview of ongoing projects and approaches to reducing separations

Personal contact to pilots, airlines, controllers, colleagues

Other partners + airlines + pilots

Improve communication between different stakeholders involved in WV

Meet and discuss with researchers and stakeholders

An overview of major WV activity in Europe (from applied science to near-term application)

Talk to colleagues

Status information of actual EU projects – wakenet homepage

Better communication between Europe and US researchers on programs and progress

Workshops for information exchange between disciplines and stakeholders on an international basis

Get informed about recent developments in the WV field

Increase my knowledge of WV projects in Europe (+beyond)

Inform others about recent developments regarding own work

Learn about wake vortex research and operational study programs being undertaken in Europe.

Awareness:**This topic is about**

- **Wakenet to be a tool for making “all” Requirements for successful solutions known.**

(post-its linked to this theme:)

Clearer definition from stakeholders on requirements

Make sure that all aspects are covered (more people know more).

Clear definition of what would be an acceptable solution to a problem.

Understand the main drivers for WV studies

An idea about potential solutions for improved capacity

Understand the main blockers for not changing WV separations today

Implementation:

This theme is about

- **Promote quick implementation of agreed common solutions**

(post-its linked to this theme:)

Quick improvements as far as operational measures are concerned

Safe and easy to manage procedures (by pilots/controllers)

When benefits at an airport -> quick extension at others

Agreed common strategy towards WV Issues

Provides a platform to establish commitment to obtained results elsewhere (no need for duplication)

Promote implementation and acceptance of mature WS systems

Provide a roadmap or agenda 'how' to reduce WV separations.

Regulation:

This theme is about

- **Progress and harmonisation about regulatory matters**

(post-its linked to this theme:)

Work towards WV certification and operational regulatory harmonisation

ICAO and ESAR fully compliant ways of assessing whether the WVE risk of new operational concepts is acceptable.

Link regulations and physics.

Co-ordination:

This theme is about

- **Improving synergy**
- **Focusing Researchers Finding Money or sharing cost**
- **Specifically caring for wakenet (itself) continuation**

(post-its linked to this theme:)

Synergism between research and stakeholders on definition of problems and acceptable solutions

Co_ordinate WV research and operational study programs from a world wide perspective

Provide consensus on what are the research needs

Co-ordinating effective investment into WV issues

A well co-ordinated WV investment programme that delivers timely and effective results.

Define how wakenet can be continued

Stakeholder input from remote disciplines.