



FlySafe

An Early Warning System to Reduce Risk of Bird Strikes

"Lift to Space"

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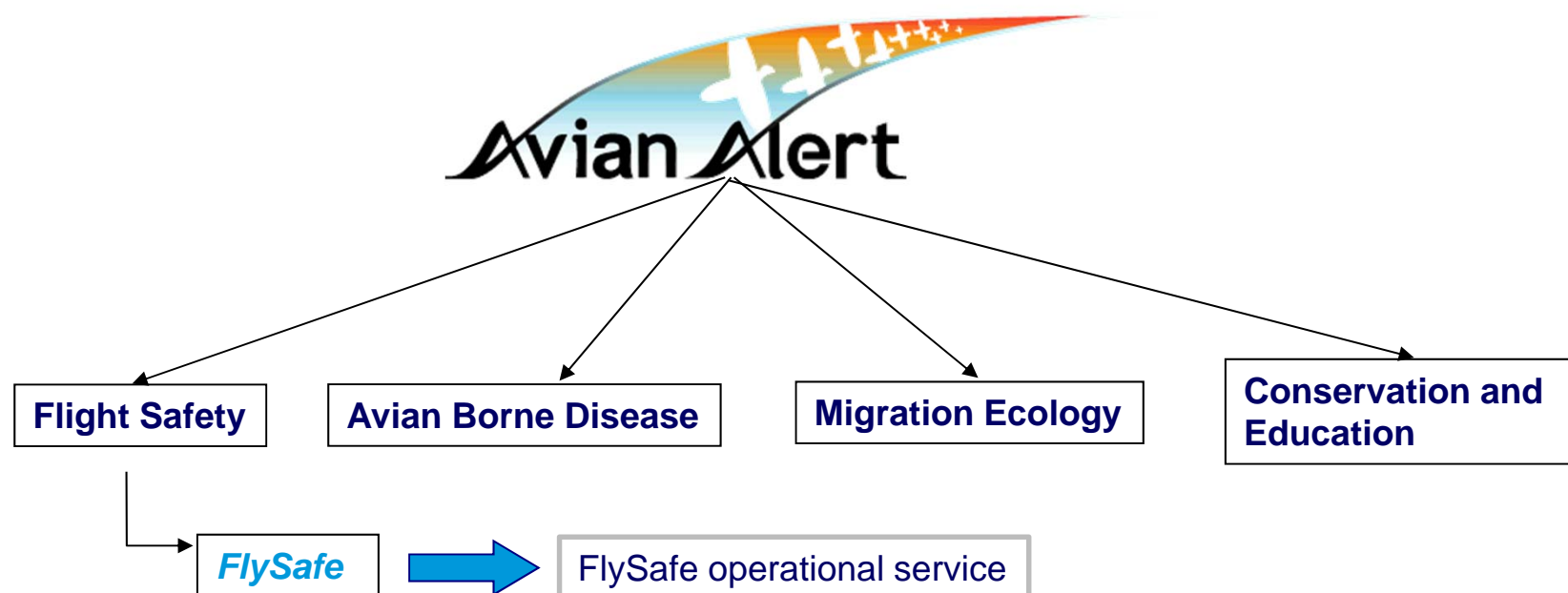
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European Space Agency



➤ Avian Alert:

- ✓ Definition of sustainable services for various user communities that need information on bird migration and bird mobility
- ✓ Main targets identified:





Birds and Flight Safety



Hudson river (New York – 15/01/09): US Airways flight 1549 ended in the Hudson River after geese were ingested into the engines (copyright: www.birdradar.com)

Birds and Flight Safety



July 15 1996 a Belgian C-130 crashed at Eindhoven Air Base due to a bird strike. 34 people were killed and 7 people were seriously injured.



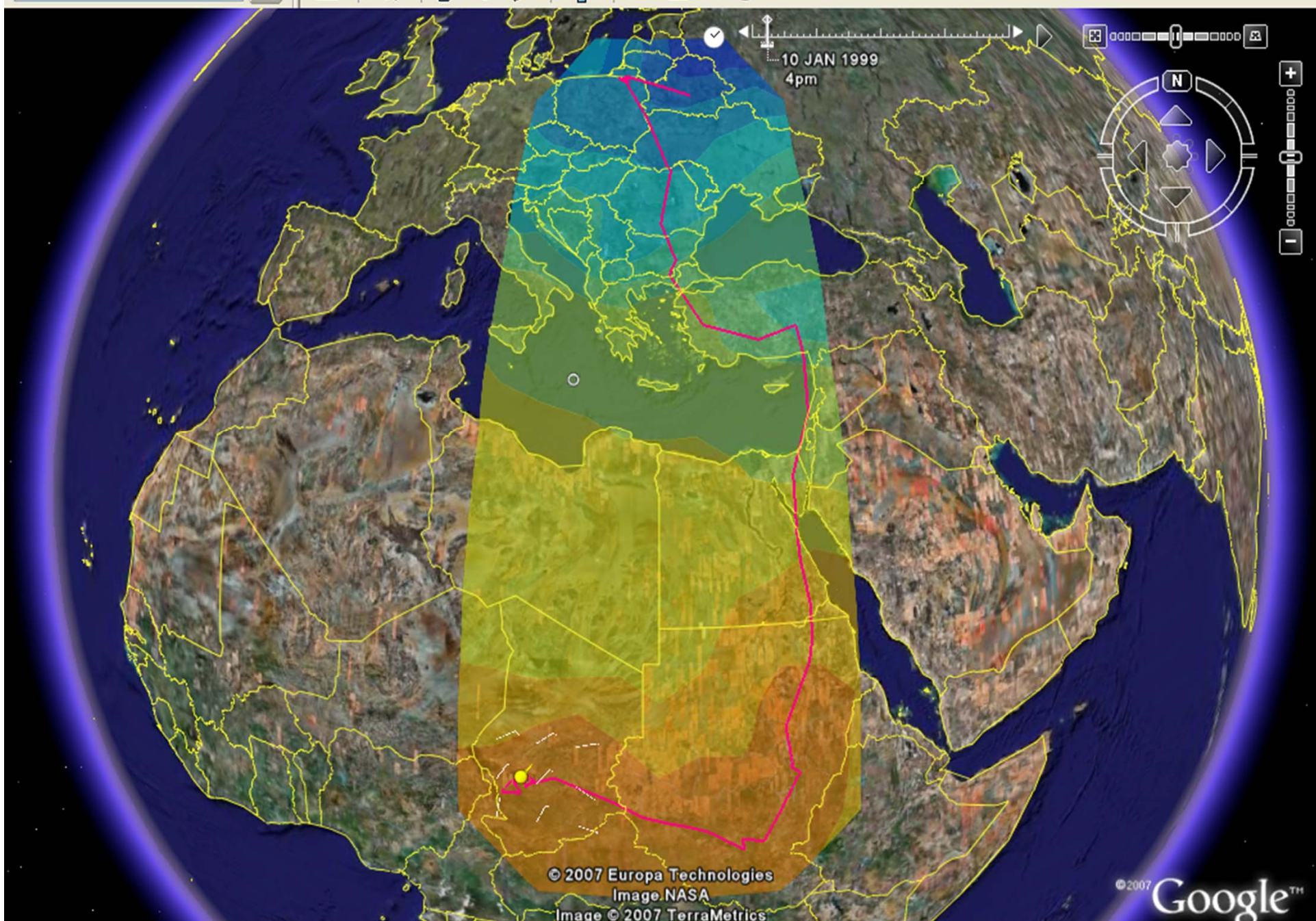
Birds and Flight Safety



GAF (1997-2004): **360** collisions strikes/year
FAF (1998-2005): **320** collisions strikes/year
RAF(<2004): **110** documented serious accidents

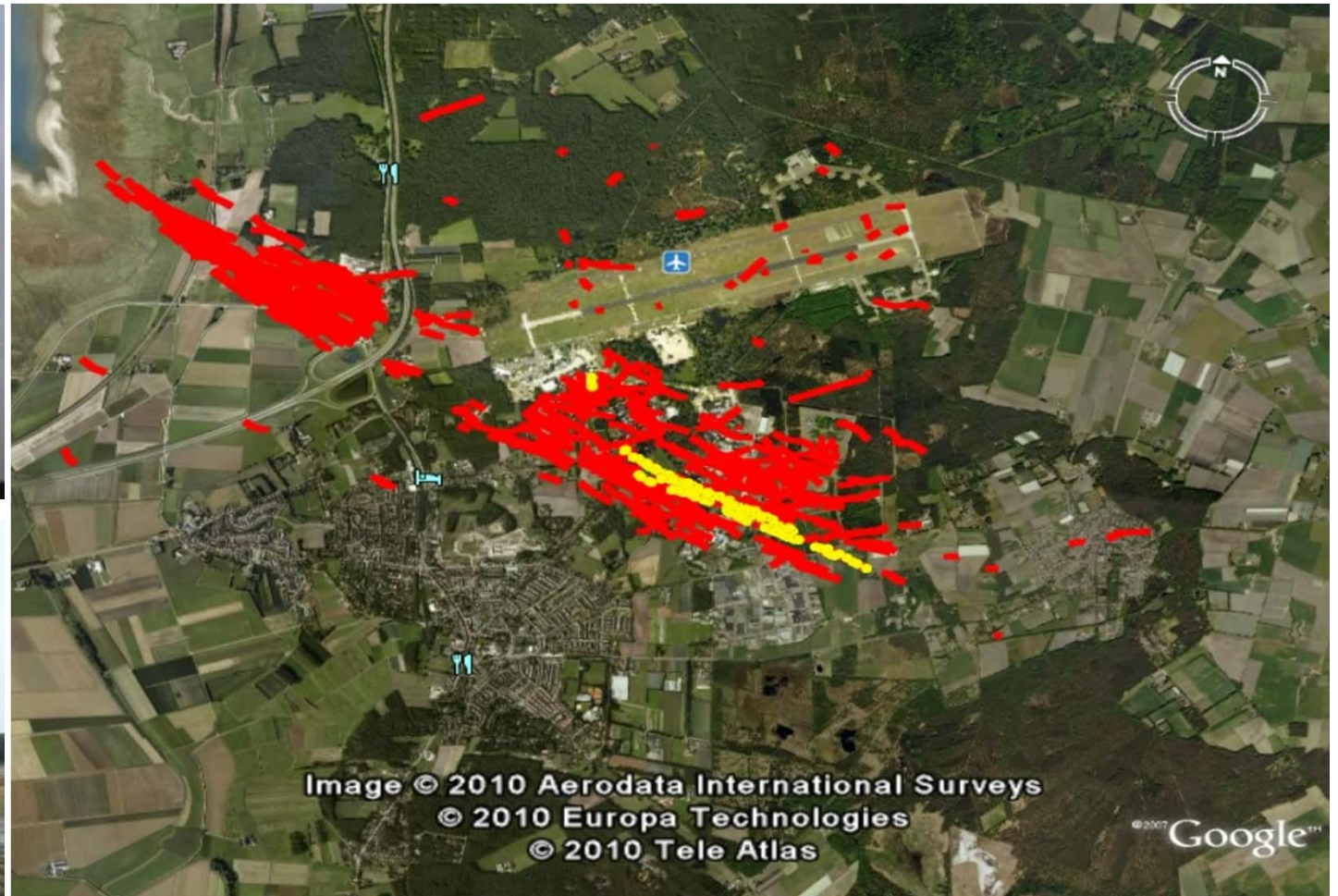
Estimated conservative cost due to damage
and delays of **commercial** aircraft worldwide
1.2 billion USD per year





FlySafe project activities

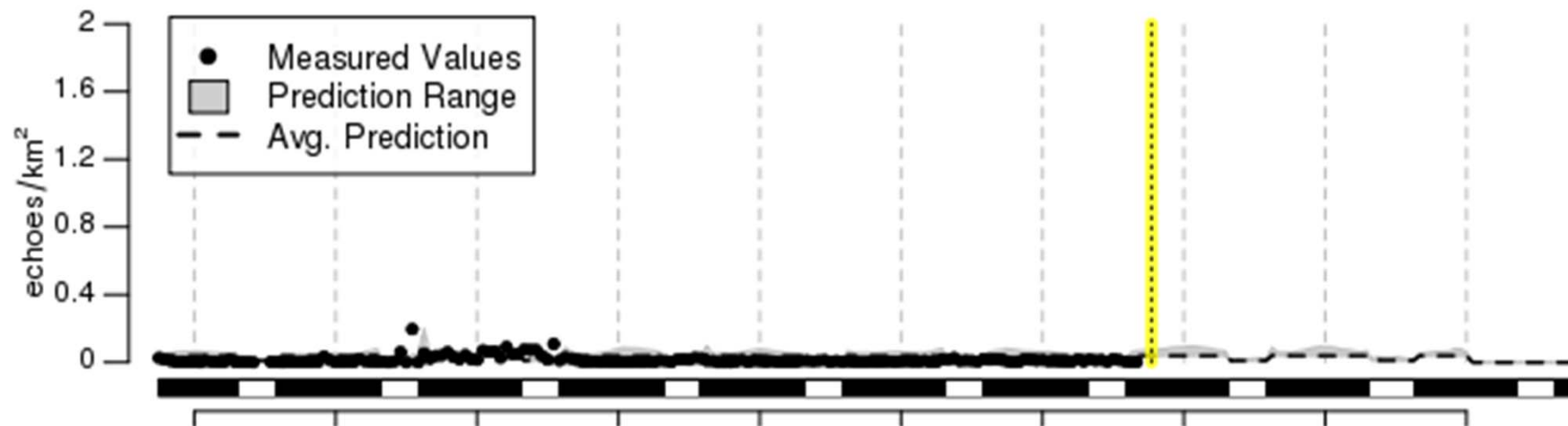
Trial of on-airfield avian radar (ROBIN Lite)



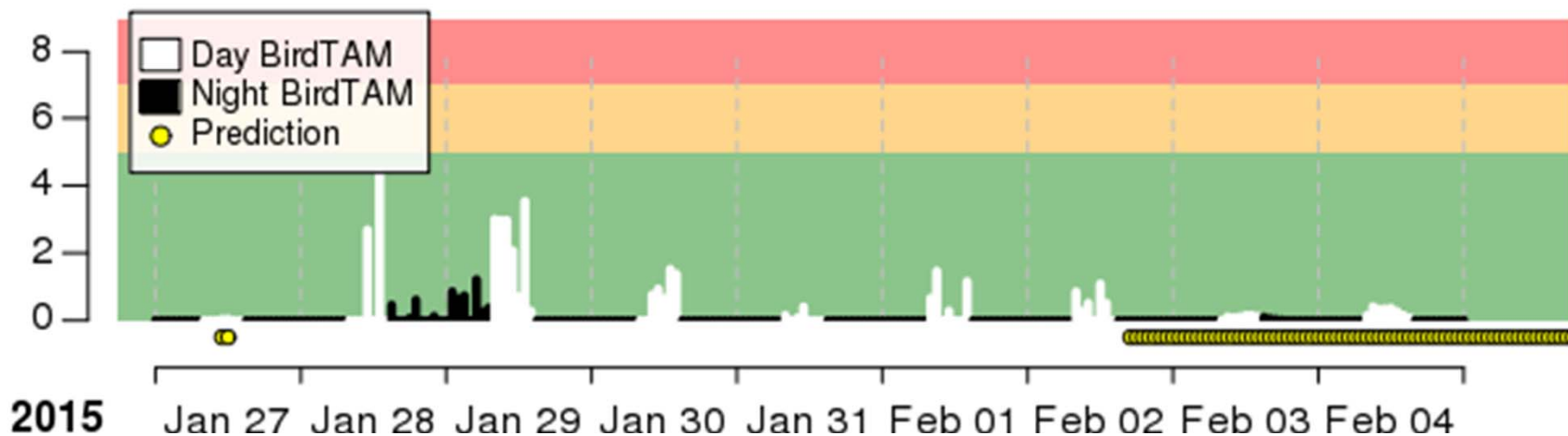
FlySafe outcome: service platform



Hourly predicted and measured migration intensity



Hourly BirdTAM Intensity

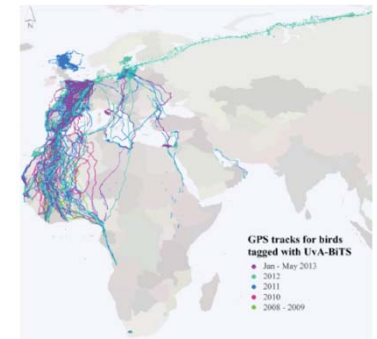


FlySafe spin-offs



Spin-offs: FlySafe has been triggering several spinouts:

- ✓ **1 start-up company, Robin Radar.** ROBIN Radar Systems got contracts in **10 countries** and is currently expanding its business towards the Middle East. Robin secured a **significant investment** from Inkef Capital (ABP) and MIF (KLM, Schiphol Airport a.o.)
- ✓ **UvABits:** the UvA Bird Tracking System (tracking individual birds using GPS based technology) has been used in **42 projects worldwide**, involving more than 40 research institutes and companies
- ✓ **FlySafe-2** project entirely financed by the Royal Netherlands Air Force led to the **extension of FlySafe services in Europe** (weather institutes from **16 countries** were involved)
- ✓ **Jobs:** More than **30 FTE jobs** have been created



FlySafe, Spin-off Applications



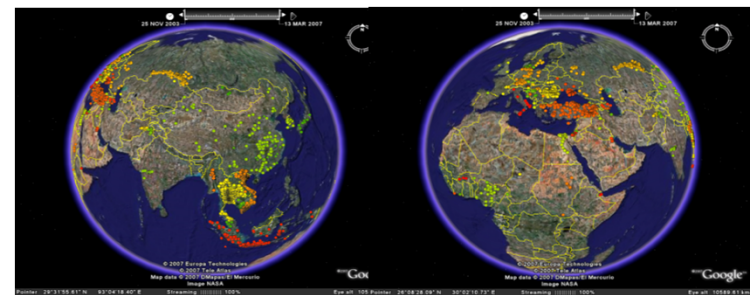
Birds and Energy



Birds and Agriculture



Birds and Health



Avian Influenza H5N1 outbreaks

Source: Declan Butler <http://declanbutler.info/blog/?p=58>



Thank You

European Space Agency