



# Project SatcomWeather: Summary and Outlook

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KFU Graz

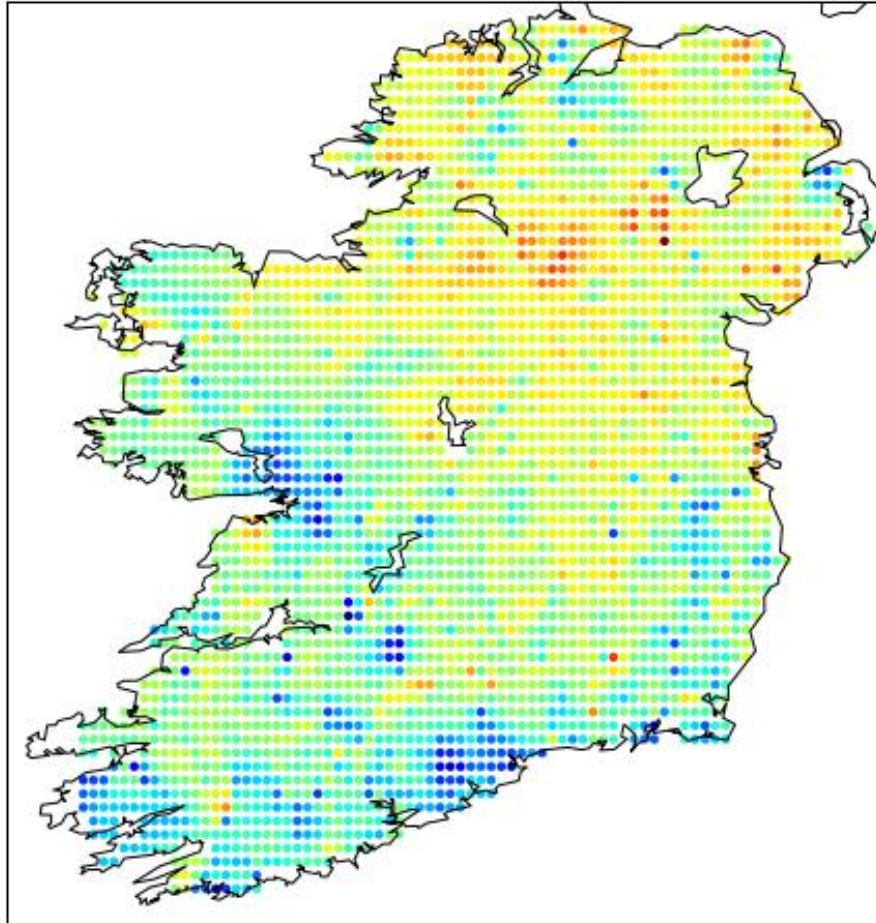
# VSATs (very small aperture terminals)



The typical ground terminal antenna for internet access in the Ka band: VSAT with 74 cm dish size

# Signal- / Weather maps

Ireland and Northern Ireland



Source:

**F. Teschl, V. Eder, L. Costa,  
S. Amberger, O. Koudelka**

67th International Astronautical  
Congress (IAC), Guadalajara,  
Mexico, 26-30 September 2016

# Progress in the last year

- Own data storage system for 12000 terminals for a two years period an 10 min time resolution
- Software architecture allows multi-dimensional data access
- Graphical big data processing (2-D maps visualizations, waterfall diagrams, histograms, line plots, animated time-series, etc.)
- Implementation of a VSAT installation quality map
- Installation of reference VSAT stations



# Installation of reference terminals in Graz

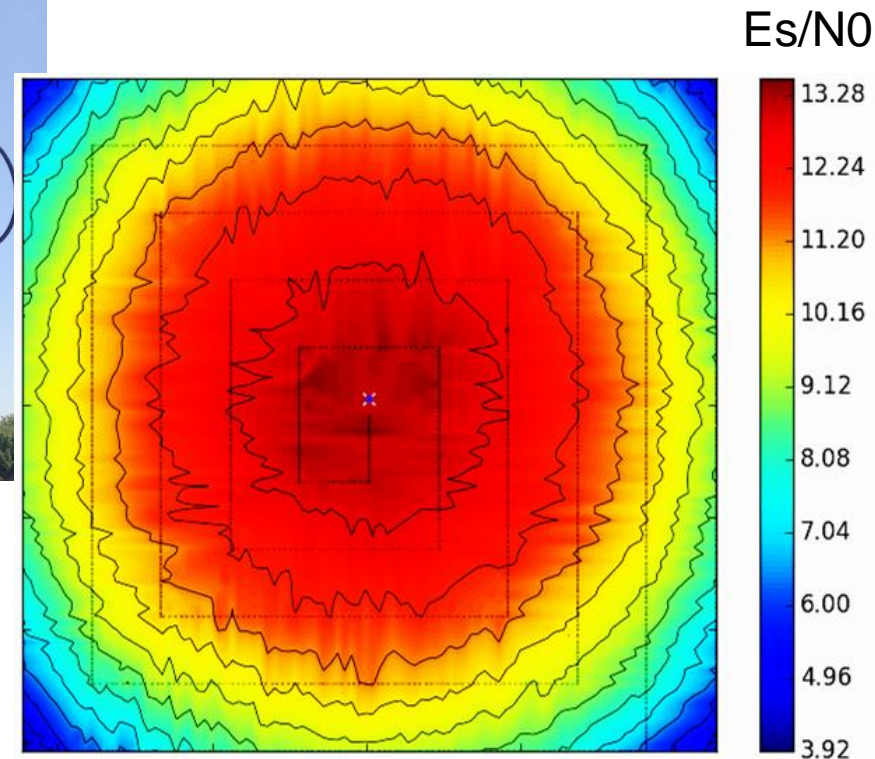


Photo: I. Panayiotopoulos

# Antenna pattern measurements



Antenna pointing mechanism

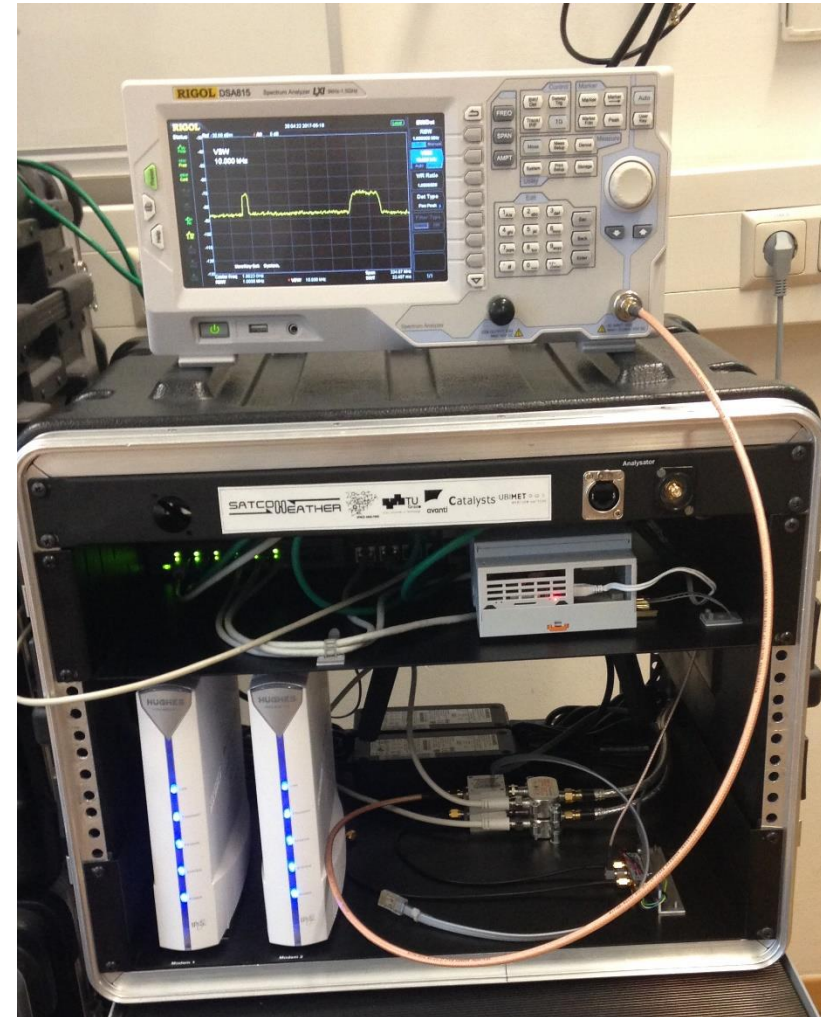




# Modem data review

Continuous comparison of  
Signal-to-Noise ratio

Modem vs. Spectrum Analyzer



# Conclusion

For Weather Service Providers:

„The VSAT data is as useful as weather radar data when used in weather models“

For SatCom Operators:

“A high understanding of the VSAT system has been achieved, being able to distinguish various influences on the signal and correct them”



# Outlook

- „Final Presentation” at ESTEC in February
- The follow-up project is currently in evaluation. The main goals are
  - Link budget validation
  - Footprint shape validation
  - Carrier measurements
  - IT infrastructure optimization
  - Finally: transformation of the current off-line system into a near real time service including installation threshold and weather data delivery



# Thank you!

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