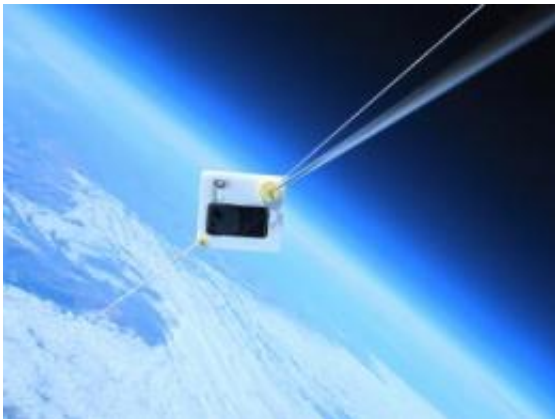


# Scientists reach beyond the clouds with mobile phone app to explore the outer atmosphere

March 30 2011

---



The ASTRA phone is pictured 18,233m above South Wales. Credit: University of Southampton

Engineering scientists at the University of Southampton have reached above the clouds in a first-of-its-kind experiment to develop new technologies that probe the stratosphere using an unmanned vehicle.

The [test flight](#) was part of the ASTRA ([Atmospheric Science Through Robotic Aircraft](#)) project, and it demonstrated how a low-cost [high altitude](#) platform could be used to send a payload with atmospheric monitoring equipment into the upper atmosphere. The balloon-borne aircraft harnessed the power of 'cloud computing' using an on-demand

computing and storage resource, via the GSM mobile phone network.

Cloud computing refers to the delivery of computing resources and services on demand via the Internet.

University scientists worked with Microsoft and University spin-out company Segoz to develop a Windows Phone 7 application for on-board data logging and payload tracking. During the one-hour flight, the phone running the Windows Phone 7 operating system, served as the on-board data logger, tracking tool and communications relay. The phone streamed data to a cloud application built on Windows Azure, designed to continuously update the landing site prediction. The app running on ground-based phones had a 'tracker mode' so the ASTRA team were able to track the payload during its flight, over 70,000 feet high, enabling its safe recovery.

Dr András Sóbester, University of Southampton Lecturer and a Royal Academy of Engineering Research Fellow, says: "We are excited that this constitutes a unique opportunity to collect important data that will give new insight into how the [upper atmosphere](#) affects Earth's climate and environment, using affordable technology."

Dr Steven Johnston, from the University of Southampton's Microsoft Institute of High Performance Computing, adds: "Our software solution couples together [Windows Phone](#) 7 mobile computing with powerful cloud [computing resources](#) to analyse the data we are collecting in real-time."

The flight carried the payload through the tropopause and deep into stratosphere, where the temperature dropped below -50C. The phone and the rest of the equipment was protected by a high-grade foam enclosure (manufactured using a computer-controlled laser cutter at the University's Engineering Design and Manufacturing Centre). This

ensured the reliable operation of the on-board electronics in such extreme environmental conditions.

Provided by University of Southampton

Citation: Scientists reach beyond the clouds with mobile phone app to explore the outer atmosphere (2011, March 30) retrieved 26 April 2024 from <https://phys.org/news/2011-03-scientists-clouds-mobile-app-explore.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.