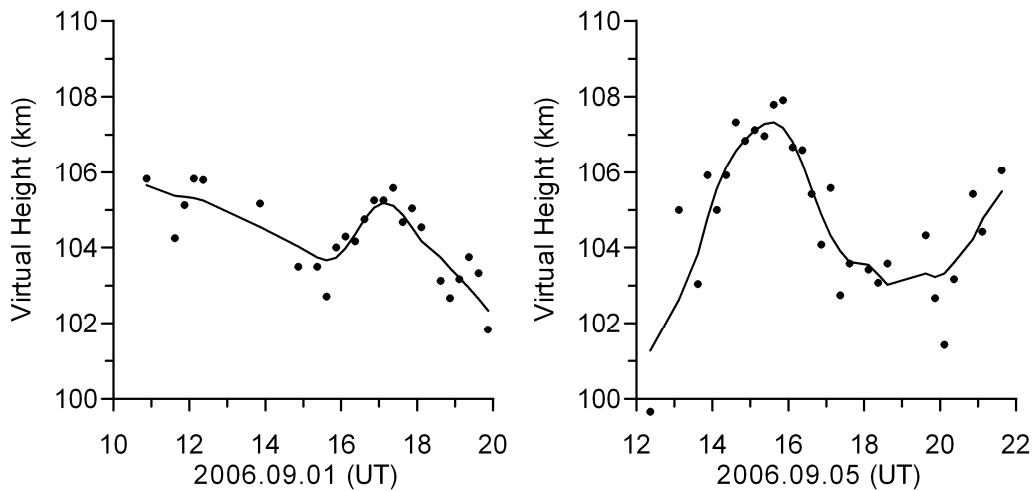


**Proposal
for a
E Layer Precision Group Height Measurement Campaign.**

During discussions of the COST296 activities related to the IHY, chaired by G. de Franceschi, it was proposed to perform a campaign of specific measurements with ionosondes, coordinated by the COST296 Action, in support of a planned CAWSES campaign. The COST campaign will meet the objectives of the Third CAWSES Global Tidal campaign and is scheduled for 1 June to 14 August 2007.

At the MCM in Rome in March 2007 it was decided to organize Digisonde operators in the COST296 community to conduct a campaign aimed at measuring the ionospheric E layer height variations by taking advantage of the Precision Group Height Measurement technique (PGHM) imbedded in the Digisondes. The PGHM technique determines virtual heights $h'(f)$ with an accuracy of 0.5 km. This accuracy provides the opportunity to assess the dynamic coupling between the neutral atmosphere and the ionosphere by analyzing the $h'E$ variations caused by atmospheric tides. Two examples of trial PGHM observations of the E region height variations carried out at Millstone Hill, MA in September 2006 are shown below.



Original data (dots) with FFT-fit data (lines).

According to the above we would like to encourage all stations operating Digisonde systems to participate in this initiative. This type of measurements requires operation of the sounders in the high Doppler resolution mode (aka “Drift mode”), which should be programmed by an experienced system operator. To assure maximum success of the campaign, we suggest the following approach.

1. Since E region echoes are only observed during daytime, low frequencies should be selected to get maximum time coverage, e.g., the frequencies should be between 2 and 3 MHz. PGHM uses 4 frequencies f , $f + 5$ kHz, $f + 10$ kHz, and $f + 15$ kHz. The station operators should select the “best” frequency f that assures minimum interference and reliable echo amplitudes.
2. Measurement cadence is 15 min or less (where possible)
3. The University of Massachusetts Lowell Center for Atmospheric Research (UMLCAR) will provide the PGHM operating program. UMLCAR offers two

options of implementing the measuring program and schedule into the participating Digisondes:

a) Internet remote upload by UMLCAR experts after authorization from station operator. Existing firewalls must be opened for this process. The firewalls should be opened for the following IPs:

129.63.134.10 - David Kitrosser.

129.63.134.12 - Ivan Galkin.

129.63.134.22 - Dima Paznukhov.

129.63.134.32 - Ryan Hamel.

129.63.134.100 - David Altadill.

b) UMLCAR will send program to station operator for local installation.

4. All PGHM data will be centrally archived in Drift Database at UMLCAR.

This type of measurements is most readily performed by DPS systems but we are also evaluating the possibility of obtaining good observations from DGS256. Please let us know whether your station would like to participate in the proposed campaign and whether you agree with the suggested approach.

Thanking you in advance for your cooperation,

David Altadill.