



International Polar Year 2007-2008

Why is a very long series of observations with the EISCAT Svalbard Radar interesting and important? Incoherent scatter radars, such as the EISCAT Svalbard Radar, normally only operate for a few days at a time, which means that the data recorded is 'blind' to many variations in the ionosphere and atmosphere.

Such situations are not unusual. Someone visiting the coast for one hour a year would be unaware that the tide rose and fell twice a day, or even that there were tides at all! Nevertheless, they might be very well informed about the rocks and geology of the coast. Similarly, someone living in a windowless building who walked outside only at midday each day would be unaware that the sun set below the horizon at night, but might be fully aware of variations in the weather. There are many such examples where the observations are excellent, but do not give the full picture.

There are several ways to address this.

One way which has enormous potential is to assimilate data from many different instruments; if the coastal visitor compares his experience with those of his friends, between them they quickly realise that the sea must rise and fall, and that there are many different factors which determine the height of any individual tidal movement. Even if he has few friends, he can achieve similar results from reading newspapers, looking at satellite images, etc; indeed, assimilating data of different types results in a more complete picture even than assimilating a great deal of data of the same type.

Another method is to increase the length and scope of the observations. The coastal visitor can move to the coast for a year for example.

The International Polar Year (IPY) affords a unique opportunity to pursue both approaches with the EISCAT Svalbard Radar.

Many instruments and techniques will be used to observe the polar regions during the IPY and all will make major efforts to make their data readily available in forms which can easily be understood and exploited by everyone. EISCAT data are routinely distributed through a web-based distributed database and additional software will allow that database to be mapped transparently into the much larger databases and data portals being developed by the international IPY community.

In addition, the EISCAT Svalbard Radar will increase its operations during the IPY from around 2000 hours a year to essentially continuous coverage to produce the most detailed and extensive record of the high latitude ionosphere ever recorded.