Meteorology Research Project, 2011

UCD Automatic Weather Station: Wind Analysis

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The UCD Meteorology & Climate Centre has acquired AWS equipment. The goal of this project is to make use of the data from the AWS at the Rosemount site.

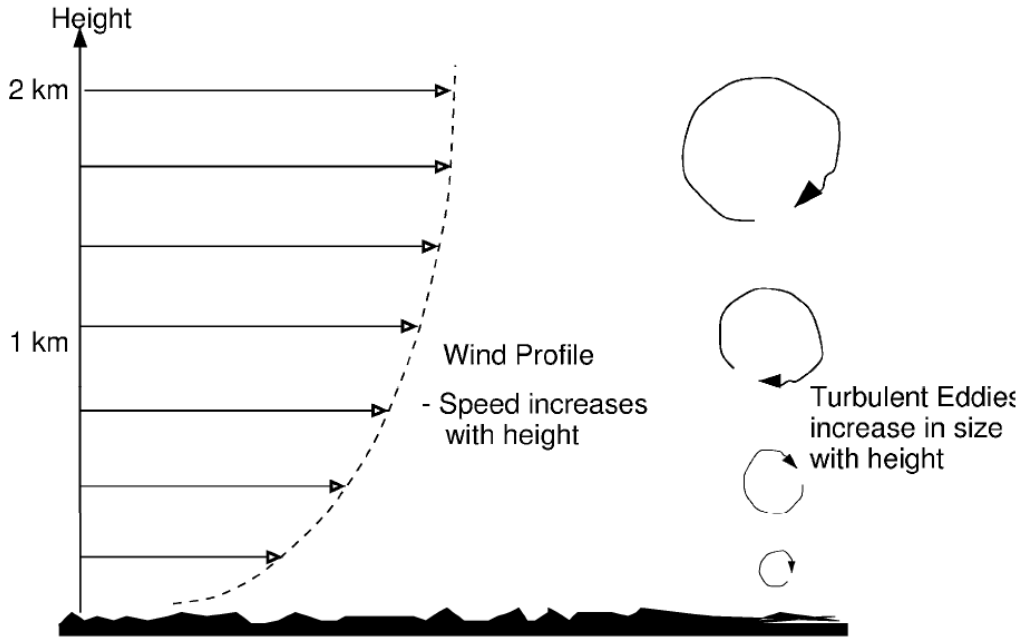

Figure 36 Schematic diagram of the atmospheric boundary-layer

The lower part of the atmosphere, which is directly influenced by the surface of the Earth, is known as the *boundary-layer*. It has a depth varying from hundreds of metres up to one or two kilometres. The boundary-layer is important in meteorology for two reasons:

1. It is the region in which most of the energy driving atmospheric processes originates, as heating from the surface which is warmed by the sun's short-wave radiation.

2. The boundary-layer is the most important part of the atmosphere in the wider field of Environmental Science: it is the region where we live, produce our food and release the bulk of our anthropogenic pollution.

The student should:

- **Familiarize himself/herself with the equipment that has been purchased and installed**
- **Study the relevant documentation on the relevant sensors.**
- **Assist in the installation of anemometer equipment on the mast.**
- **Acquire a time series of observational wind data at different heights.**
- **Analyze the vertical profile of wind under different conditions.**
- **Study the diurnal cycle of wind.**
- **Investigate wind patterns during a frontal passage.**

The results of the research should be presented in a report.