

Figure 10.29 Cloud associated with airflow over a mountain, in stable conditions.

## THE FÖHN EFFECT.

**Stable air** flowing over a mountain may also give rise to what is known as the **Föhn Effect** and its associated **cloud** and **wind**. The term **Föhn wind** describes a wind blowing down the **lee** of a mountainside, and which is **warmer** and **drier** than the air moving up the **windward** side of the mountain, at the same height.

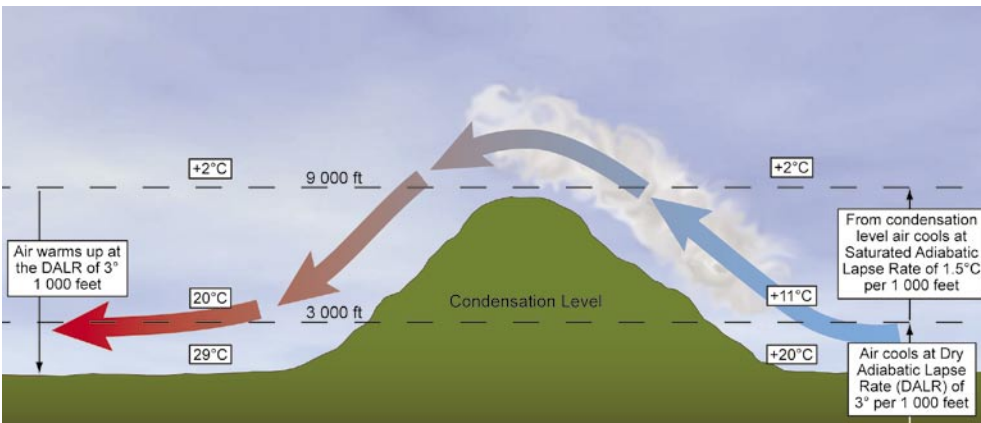


Figure 10.30 The Föhn wind and the Föhn effect.

Figure 10.30 depicts **moist air** moving up the windward side of the mountain. First of all, the air is **unsaturated** and, as it rises up the mountainside, it cools at the **Dry Adiabatic Lapse Rate (DALR)** of **3° per 1 000 feet**. When the air becomes **saturated**, however, cloud will form, possibly accompanied by precipitation, and, from that point, the air will continue to cool at the lower **Saturated Adiabatic Lapse Rate (SALR)** of **1.5°C per 1 000 ft**. When the air **descends** on the **leeward** side of the mountain, it will have lost much of its **water vapour** content through the formation of **cloud**, and **precipitation**. Consequently, the descending air will heat up at the **DALR** of **3° per 1 000 feet**, giving rise to **warm, dry valley winds**.

**Föhn winds** and the **Föhn Effect** are common phenomena in the Alps.