

## **SECTION 2**

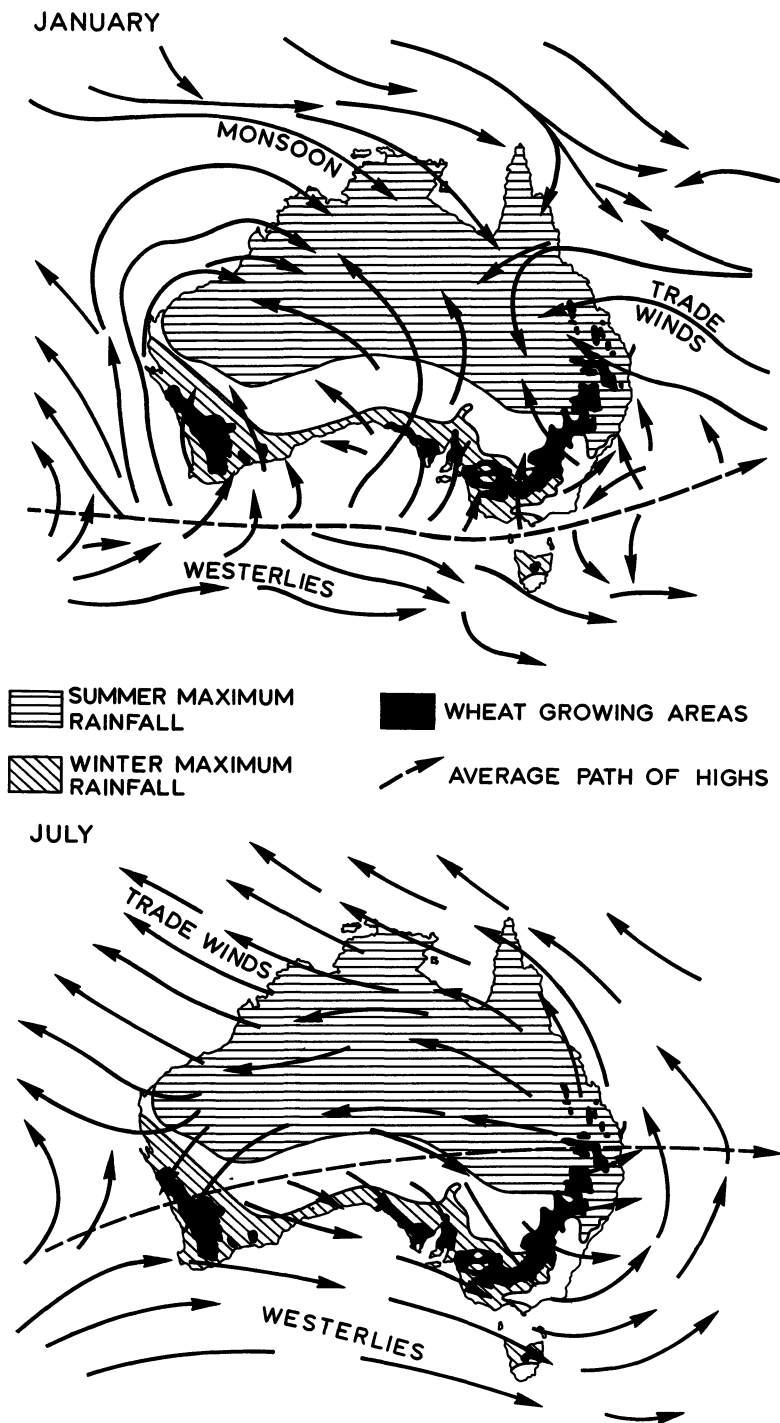
# **Climatic Patterns and Variability in the Australian Wheatbelt**

### **2.1. Introduction**

This section sets the climatic background against which the crop response and economic and social impact sections of the Australian case study are developed. A general description of the climate of the Australian wheatbelt has been given in Section 1. The underlying causes of the observed patterns are examined here. The evidence for climatic fluctuations in Australia during the period of instrumental record (practically, because of data limitations, during the twentieth century only) is examined, as it adds further detail to the background against which wheat production must be set. Such evidence illustrates the degree of relatively sustained variability to which it might be argued producers have become accustomed, and it also points to the possible nature of sustained trends to which longer-term adjustments, and for which longer-term planning, might be necessary. Studies of any tendency for dry or wet periods to persist, and so indicate longer-term variation in rainfall patterns, may also aid the ultimate prediction of extremes, leading to reduced impacts on the rural sector.

Several workers have recently looked closely at a variety of atmospheric teleconnections as playing major roles in the production of climatic patterns and climatic variability. Much attention for the Australian region has been focused on the apparent relationships between the Walker circulation–Southern Oscillation/El Niño complex and the occurrence of unusually dry or wet spells. These relationships are discussed in detail in this section.

There has always been a keen interest in the whole question of drought predictability in Australia and indeed elsewhere. Since the possibility of prediction should be of concern to planners, policy makers and decision-makers, this is examined with particular reference to the large-scale climatic controls concerned.



**Figure 2.1.** Mean atmospheric circulation in the Australian region and seasonal rainfall zones.