



Wind Environment Statement

for the proposed development known as the

Quest Sydney Olympic Park

November 19, 2008

Report Reference No. WA599-01F02(rev0)- WS Report

Document Control

Revision Number	Date	Revision History	Prepared By (initials)	Initial Review By (initials)	Reviewed & Authorised By (initials)
0	19/11/2008	Initial	JAL		TR

The work presented in this document was carried out in accordance with the Windtech Consultants Pty Ltd Quality Assurance System, which is based on Australian Standard / NZS ISO 9001.

This document is issued subject to review and authorisation by the Team Leader noted by the initials printed in the last column above. If no initials appear, this document shall be considered as preliminary or draft only and no reliance shall be placed upon it other than for information to be verified later.

This document is prepared for our Client's particular requirements which are based on a specific brief with limitations as agreed to with the Client. It is not intended for and should not be relied upon by a third party and no responsibility is undertaken to any third party without prior consent provided by Windtech Consultants Pty Ltd. This report should not be reproduced, presented or reviewed except in full. Prior to passing on to a third party, the Client is to fully inform the third party of the specific brief and limitations associated with the commission.

The information contained herein is for the purpose of wind, thermal and or solar effects only. No claims are made and no liability is accepted in respect of design and construction issues falling outside of the scope of this report.

1.0 Introduction

This report is an opinion on the likely impact of the proposed development known as the Quest Sydney Olympic Park on the wind environment within and around the site.

The effect of wind activity within and around the site of the proposal is examined for the three predominant wind directions for Sydney, i.e. north-east, south and west. The analysis of the wind effects relating to the proposal was carried out in the context of the local wind climate, building morphology and land topography.

The conclusions of this report are drawn from our extensive experience in this field and are based on an examination of the architectural drawings prepared by COX Architect, dated August, 2008. No wind tunnel tests have been undertaken for the subject development. As such, this report addresses only the general wind effects and any localised effects that are identifiable by visual inspection. Any recommendations in this report are made only in-principle and are based on our extensive experience in the study of wind environment effects.

2.0 Local Wind Climate

Three principal wind directions potentially affect the development. These winds prevail from the north-east, south and west, Table 1 is a summary of the principal time of occurrence of these winds. This summary is based on data obtained by the Bureau of Meteorology from Sydney Airport, between 1939 and 1992. Table 1 presents a summary of the principal time of occurrence of these winds.

Table 1: Principal Time of Occurrence of Winds – Sydney Region

Month	Wind Direction		
	North-Easterly	Southerly	Westerly
January	X	X	
February	X	X	
March	X	X	
April		X	X
May			X
June			X
July			X
August			X
September		X	X
October	X	X	
November	X	X	
December	X	X	

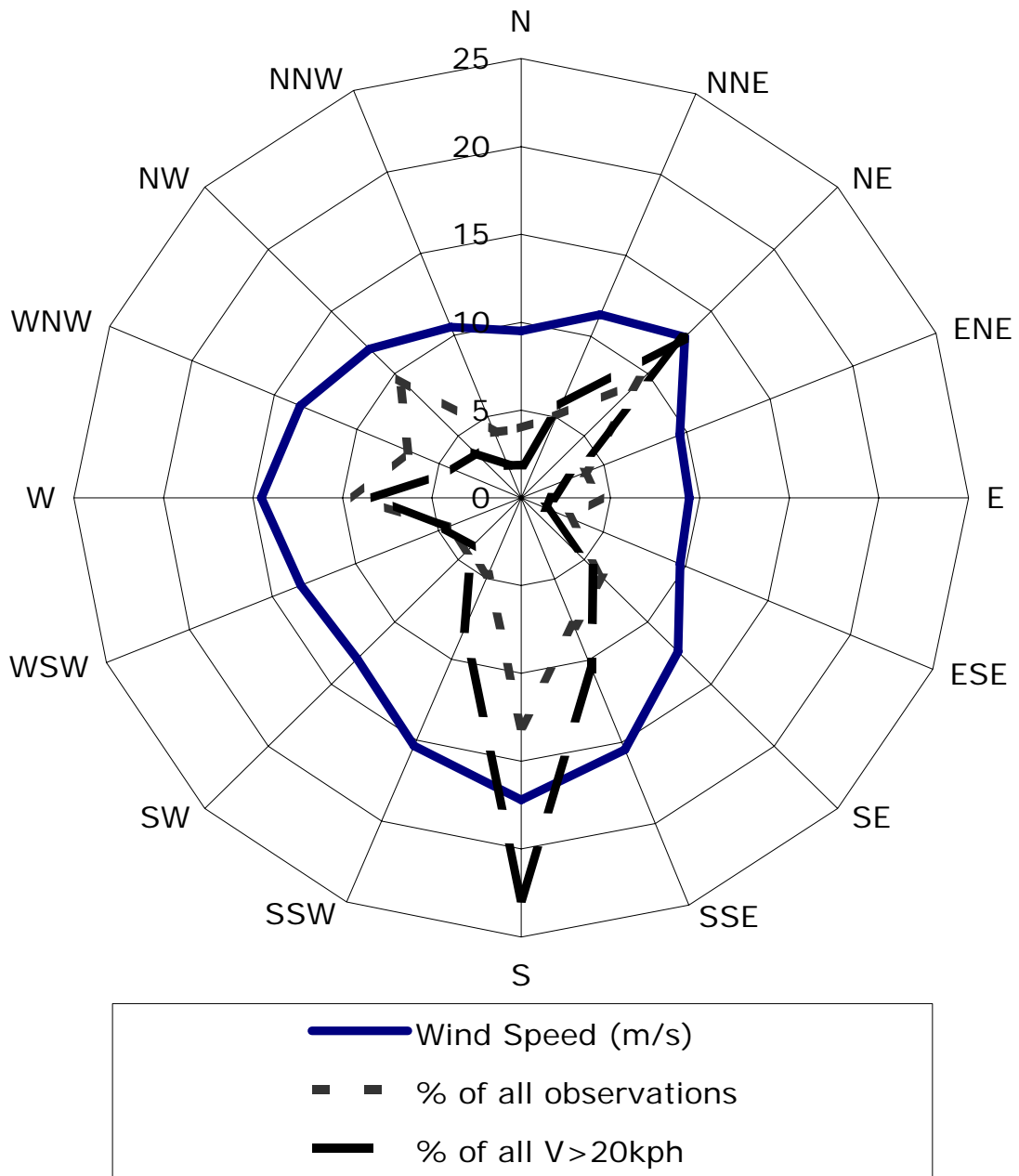


Figure 1: Basic Mean Wind Speed Data for Sydney, 1939-1992 (in metres per second, based on 3 hourly mean wind speeds, at 10m height at Kingsford Smith Airport)

3.0 Wind Effects on People

The acceptability of wind in any area is dependent upon its use. For example, people walking or window-shopping will tolerate higher wind speeds than those seated at an outdoor restaurant.

The following table, developed by Penwarden (1975) (see Table 2), is a modified version of the Beaufort Scale, and describes the effects of various wind intensities on people. Note that the applicability column related to wind conditions occurring frequently (exceeded approximately once per week on average). Higher ranges of wind speeds can be tolerated for rarer events.

Table 2: Summary of Wind Effects on People (after Penwarden, 1975)

Type of Winds	Beaufort Number	Gust Speed (m/s)	Effects	Applicability
Calm, light air	1	0 - 1.5	Calm, no noticeable wind	Generally acceptable for Stationary, long exposure activities such as in outdoor restaurants, landscaped gardens and open air theatres.
Light breeze	2	1.6 - 3.3	Wind felt on face	
Gentle breeze	3	3.4 - 5.4	Hair is disturbed, Clothing flaps	
Moderate breeze	4	5.5 - 7.9	Raises dust, dry soil and loose paper - Hair disarranged	Generally acceptable for walking & stationary, short exposure activities such as window shopping, standing or sitting in plazas.
Fresh breeze	5	8.0 - 10.7	Force of wind felt on body	Acceptable as a main pedestrian thoroughfare
Strong breeze	6	10.8 - 13.8	Umbrellas used with difficulty, Hair blown straight, Difficult to walk steadily, Wind noise on ears unpleasant.	Acceptable for areas where there is little pedestrian activity or for fast walking.
Near Gale	7	13.9 - 17.1	Inconvenience felt when walking.	
Gale	8	17.2 - 20.7	Generally impedes progress, Great difficulty with balance.	Unacceptable as a public accessway.
Strong gale	9	20.8 - 24.4	People blown over by gusts.	Completely unacceptable.

4.0 Description of the Proposal

The proposed development consists of a building of seven levels above ground. The development is generally rectangular in plan. Commercial spaces are proposed on the ground level and residential apartments are proposed at remaining levels.

The main entrance is located along the Edwin Flack Avenue. Service lane way and car park entry are proposed at the western end of the development. Private balconies are proposed at the eastern aspect of the development.

5.0 Site Analysis

The site of the proposal is located within the Sydney Olympic Park. Directly east of the site is the Athletic Centre. To the north of the site is the Formula 1 Hotel of similar height to the proposed development. There is substantial existing evergreen planting along the pedestrian areas of Edwin Flack Avenue and planting adjacent to the south western edge of the site.

The subject building is relatively exposed to winds from the north-east and west.

The local land topography is relatively flat for the various directions.

For each of the three predominant wind directions, the interaction between the wind and the building morphology in the area was considered. Important features taken into account include the distances between the proposed building forms, their overall heights and bulk as well as the landform.

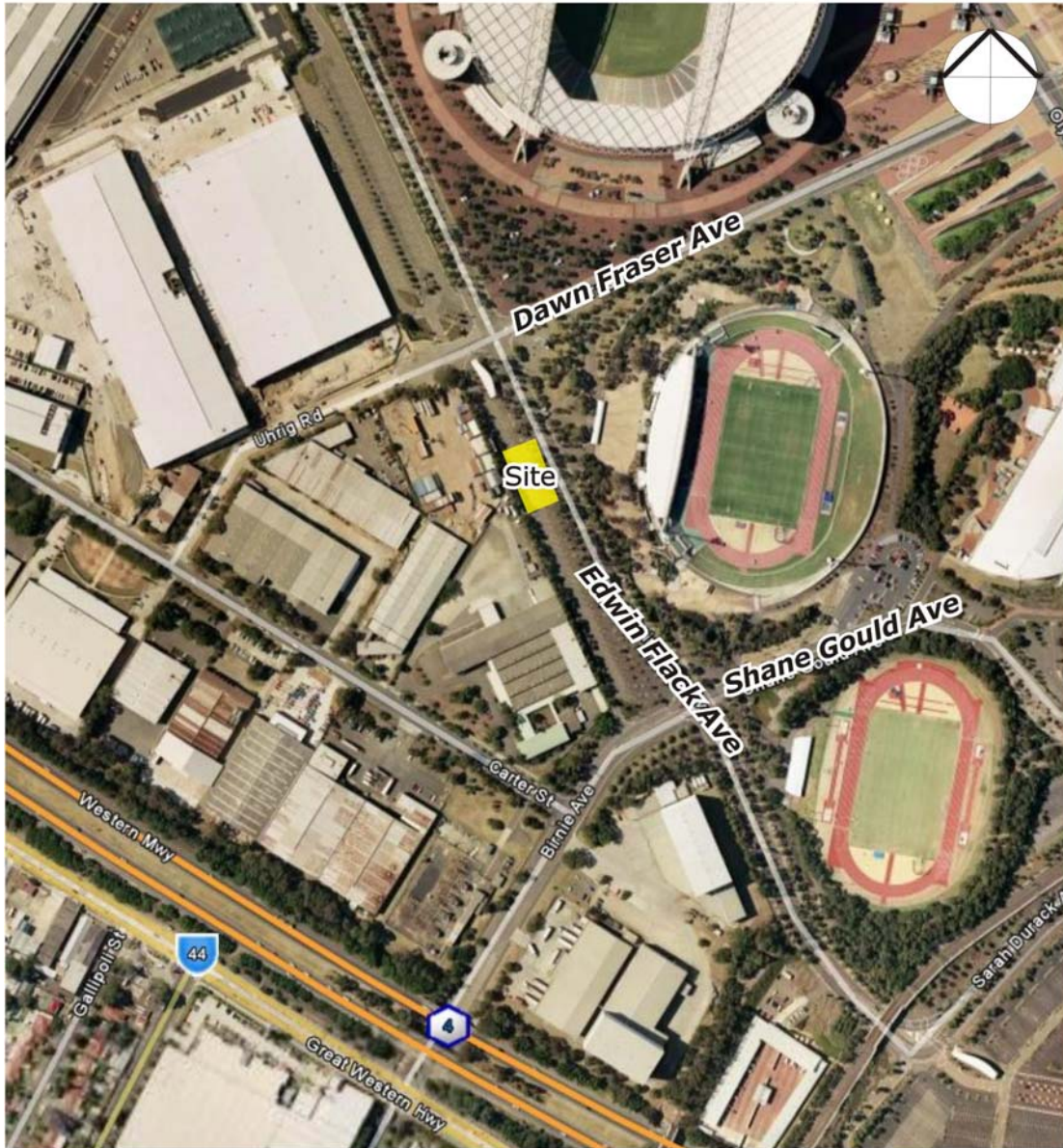


Figure 2: Aerial Photograph of the Proposed Development Site

5.1 North-Easterly Winds

The site is fairly exposed to north-easterly winds. Existing planting along Edwin Flack Avenue will ensure that the wind conditions for pedestrians along Edwin Flack Avenue are acceptable.

Due to the relatively small height of the building and the proposed colonade along Edwin Flack Avenue, the wind effects generated by side-streams will be negligible. It is expected that the wind conditions at the various entries to the development on Edwin Flack Avenue.

Due to the effective use of blade walls, it is expected that the wind conditions on various balconies will be acceptable for their intended uses.

5.2 Southerly Winds

Wind conditions within the ground levels areas surrounding the site are expected to be acceptable. Existing trees on the eastern and western edge of the site will provide protection from the ground level southerly winds. It is expected that there will be negligible side-stream effects due to the southerly winds.

Due to the effective use of blade walls, it is expected that the wind conditions on various balconies will be acceptable for their intended uses.

It is also expected that the development will improve the wind conditions for pedestrians along the north-eastern aspect of the development by shielding the south to south-westerly winds.

5.3 Westerly Winds

The ground level areas surrounding the site are expected to be acceptable due to partial protection provided by existing planting as well as existing buildings to the west of the site. Side-streaming effects are expected to be negligible and the development will not have any significant effect on the wind conditions for pedestrians.

No balconies are proposed on the western aspect of the development.

6.0 Conclusions

An analysis of the wind environment impact with respect to the principal wind directions for Sydney has been completed for the proposed development known as the Quest Sydney Olympic Park.

The conclusions of this report are drawn from our extensive experience in this field and are based on an examination of the architectural drawings prepared by COX Architect, dated August, 2008. No wind tunnel tests have been undertaken for the subject development. As such, this report addresses only the general wind effects and any localised effects that are identifiable by visual inspection. Any recommendations in this report are made only in-principle and are based on our extensive experience in the study of wind environment effects.

The proposed development will not result in any adverse impact on the wind environment in the surrounding streetscapes. Side-streaming effects are expected to be negligible due to the form of the proposed building and the local building morphology. The existing street tree planting along Edwin Flack Avenue and the western edge of the site should remain in place to provide wind protection. The proposed Quest Sydney Olympic Park development should provide some improvement to street level wind conditions by shielding of the southerly to westerly winds.

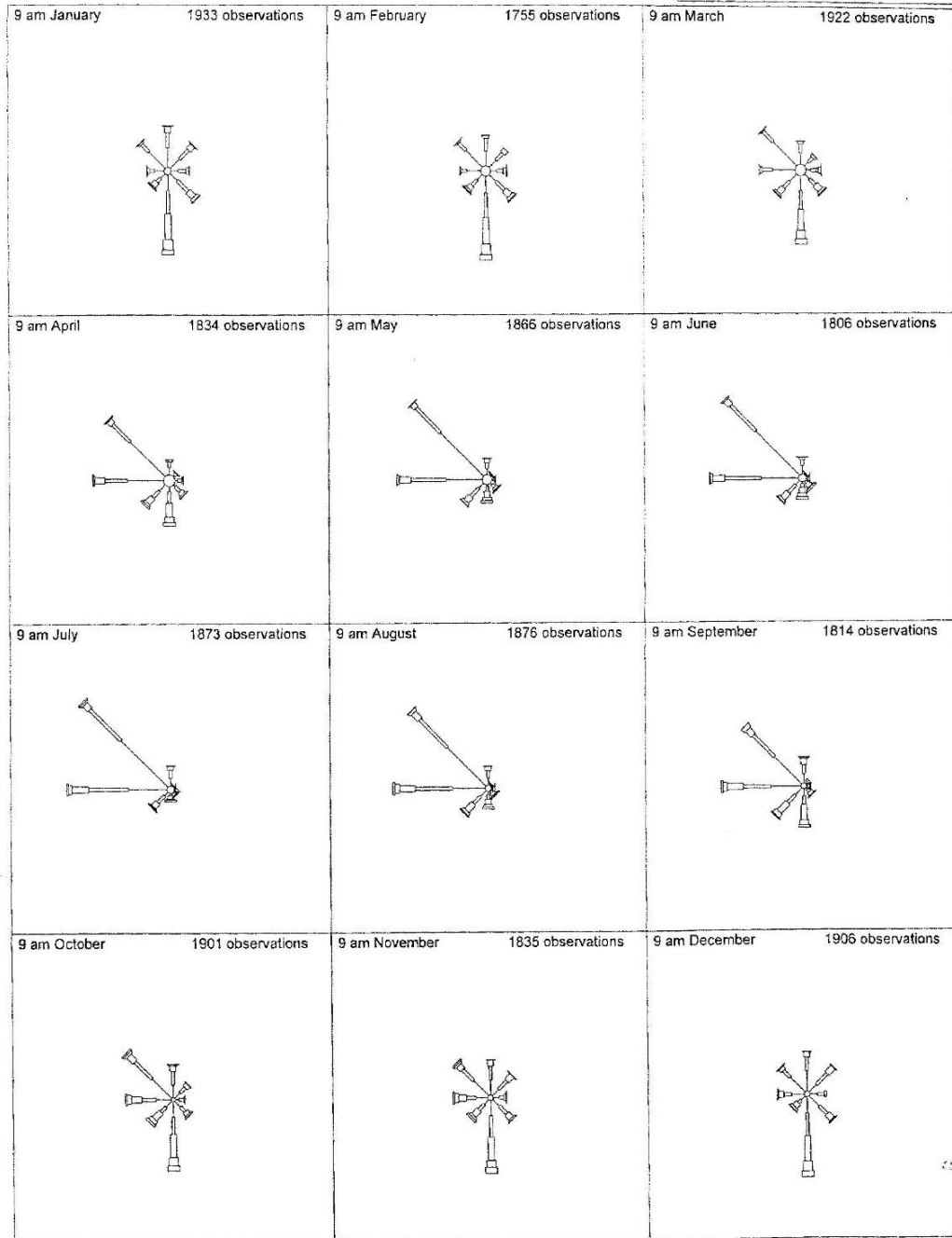
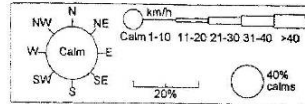
Wind conditions on various balconies within the proposed development are expected to be acceptable for its intended uses. The use of impermeable balustrades will further enhance the wind conditions.

Appendix

Wind Roses for Sydney Airport
1939-2000

**Wind Roses using available data between 1939 and 2000 for
SYDNEY AIRPORT AMO**

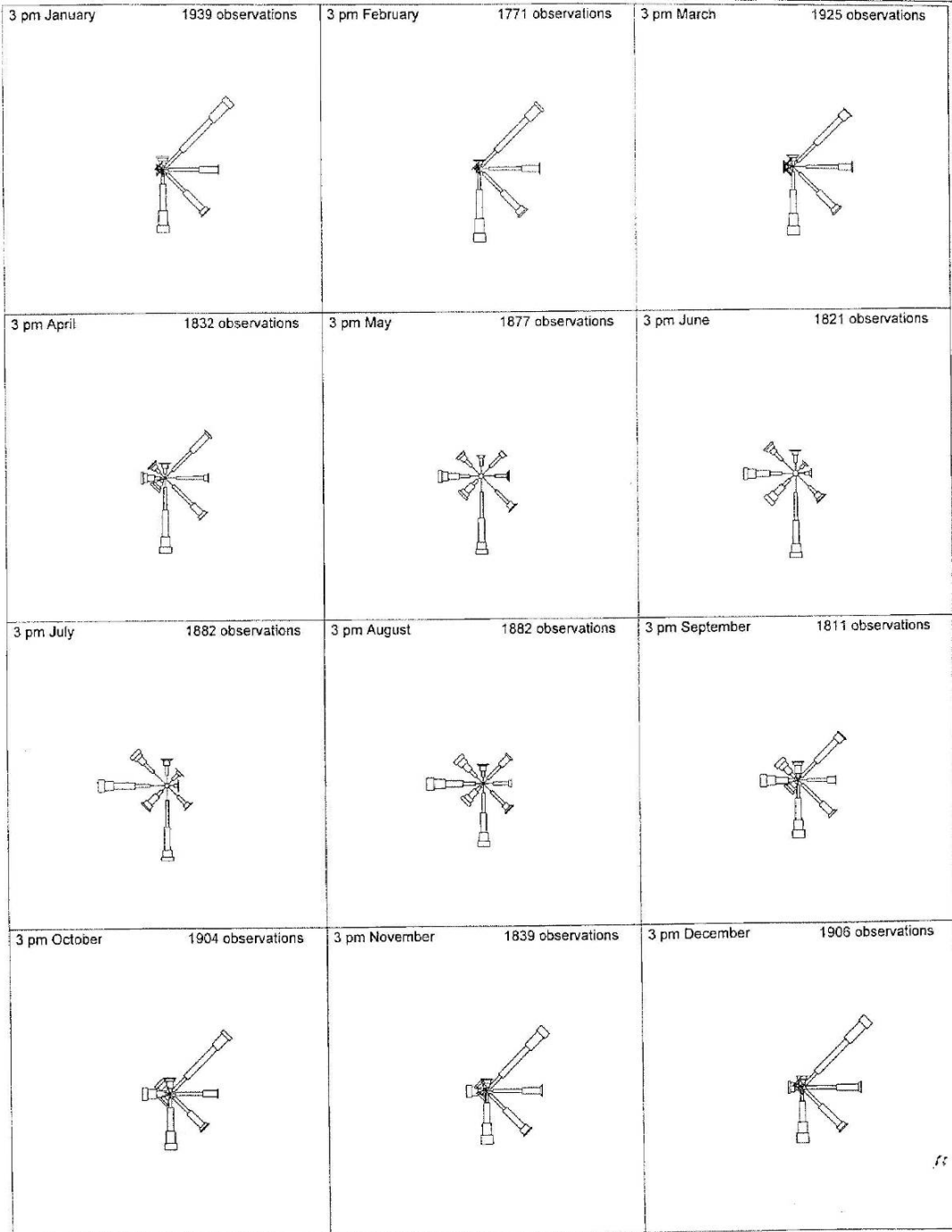
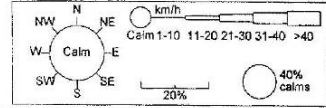
Site Number 066037 • Locality: SYDNEY AIRPORT • Opened Jan 1929 • Still Open
Latitude 33°56'28"S • Longitude 151°10'21"E • Elevation 6m



Copyright © Commonwealth of Australia 2000
Prepared by Climate and Consultancy Section in the New South Wales Regional Office of the Bureau of Meteorology
Contact us by fax 02 9296 1567, or by email on reqnsw@bom.gov.au
We have taken all due care but cannot provide any warranty nor accept any liability for this information.

Wind Roses using available data between 1939 and 2000 for SYDNEY AIRPORT AMO

Site Number 066037 • Locality: SYDNEY AIRPORT • Opened Jan 1929 • Still Open
 Latitude 33°56'28"S • Longitude 151°10'21"E • Elevation 6m



Copyright © Commonwealth of Australia 2000
 Prepared by Climate and Consultancy Section in the New South Wales Regional Office of the Bureau of Meteorology
 Contact us by fax 02 9296 1567, or by email on reqnsw@bom.gov.au
 We have taken all due care but cannot provide any warranty nor accept any liability for this information.