

## CHAPTER 10

### SERVICES FOR EDUCATION

- 10.1 Introduction
- 10.2 School project work
- 10.3 Visits
- 10.4 Work experience
- 10.5 Competition

Annex A Form of indemnity for work experience programmes

Annex B Selection of printed material for school and college project work



## CHAPTER 10

### SERVICES FOR EDUCATION

#### 10.1 Introduction

10.1.1 This chapter covers the provision of meteorological information to education authorities, schools, universities and colleges. However, where an educational establishment is operated primarily to serve one specific market sector, e.g. a college of agriculture, this should be considered part of that sector.

10.1.2 Unlike the commercial approach in most other market sectors, the provision of information and advice to educational establishments is treated differently. Office policy is broadly that no charge need be made for consultation by representatives of other national meteorological services within WMO, staff of universities, technical colleges or schools in the United Kingdom, or research students, provided that the work of the Office is not unduly disrupted (see *Met O OM* paragraph 3.10.2.4). Where reasonably small amounts of information are supplied to schools from within existing resources, e.g. copies of pamphlets, book lists, photocopies of general data, or the extraction of locally available data by the inquirer, the charges may be waived or a nominal charge made. Requests for larger amounts of information may be costed at a reduced commercial rate, provided that it is for the individual's personal use. Where information supplied is to be used which will lead to commercial gain or is being passed on with added value to a third party, or to third parties in direct competition with the Office (e.g. universities) an appropriate commercial approach must be taken. This includes those organizations whose intention is to provide, at a profit to themselves, educational material, teaching aids, computer programs, etc.

10.1.3 Many of the requests received in this sector come from individual students ranging from those at primary schools to postgraduates. With the increase in individual projects by schoolchildren and in particular the effects of the introduction of the GCSE syllabuses, the topics covered can be very diverse and time consuming to answer. This problem is discussed further in section 10.2.

10.1.4 Educational resources available from The Met. Office include:

- MetFAX Education — a dial-up fax weather service for schools and colleges.
- The Weather Story and The Weather Machine — education packs for Key Stages 1 and 2
- Images of the Earth, Weather — Education pack for Key Stage 3
- MIST — Meteorological Information Self-Briefing Terminal. Meteorological data direct to your PC.
- Weather posters.

Details of these and other services, including the provision of data, can be found in the following leaflets:

- EI1 The supply of information and data
- EI2 Catalogue of teaching and reference material for schools
- E13 Catalogue of weather data for schools
- E14 Catalogue of videos and slide sets.  
GCSE Project ideas.

These are available from The Educational Service, Room 124, London Road, Bracknell RG12 2SZ.

#### 10.2 School project work

10.2.1 An increasing volume of enquiries is received each year both at outstations and at Headquarters from school students requesting information to assist them with project and topic work. The range of subjects covered is diverse and cannot be answered without a considerable amount of investigation or data extraction. At the upper end of the age range, data for projects which form part of the assessable course — work for the new GCSE syllabuses in geography, mathematics (statistics), environmental sciences, biology and physics, may be requested as may questions on technology. Pupils will often have a free choice of the subject matter and the information requested can be quite detailed. It is often not possible to meet these requests with standard information packs.

10.2.2 At all levels it is necessary to try to encourage pupils to help themselves, although general advice may be given. They should be asked to decide exactly what it is that they want. Where information is requested they should be encouraged to read suitable material (see Annex B) and to use this to answer their own questions, this being the purpose of the project. Where data are requested, if possible they should try to visit the Public Service office to extract



it themselves and they should make do with the type of data which are readily available, including copies of local climate summaries, memoranda, etc.

10.2.3 Officers-in-Charge should seek opportunities within the local educational organization to publicize the limitations on what they may provide easily and to indicate the type of enquiries which cannot be answered except for a substantial charge. The cooperation of the local education authority should be sought to channel enquiries into particular areas, although it is realized that standardization may be contrary to the project ideal. In some cases it may be possible to obtain payment from the school or local authority for an appropriate level of response. In Scotland, a set of selected weather events has been agreed between Meteorological Office Edinburgh and the Scottish Education Authority, packs of information for each have been designed and supplied and a consolidated standard annual charge agreed with the Authority.

10.2.4 Where possible, education enquiries should be answered from local resources. When enquiries cannot be answered locally, WC and RAF stations, etc. are encouraged to pass the letters to us. Contact is kept with them through a Newsletter and the education network.

### 10.3 Visits

10.3.1 It is Office policy to encourage visits for educational purposes by parties of students, members of scientific societies and similar groups. Such visits can stimulate interest in meteorology and lead to a better understanding of the role of the Office and the process of weather forecasting.

10.3.2 Subject to there being no interference with official work, visits of this kind to outstations may be agreed locally at the discretion of the Officer-in-Charge. The responsibility for obtaining clearance to visit airfield meteorological offices rests with the Officer-in-Charge. Parties should be limited in size and visits restricted to individuals having enough basic scientific understanding to benefit from the occasion. This does not rule out junior school children provided the teacher is satisfied on this point and undertakes to control the party in a proper manner. However where a feature of the visit is access to potentially hazardous locations such as roof-top observing sites it is advisable to restrict visitors to a minimum age of 15.

10.3.3 Corporate Communications are responsible for organizing visits by parties to Headquarters, Bracknell. In general visits are accepted only on Tuesday and Thursday afternoons and are restricted to parties of 15 people or less and to those aged 17 or older (unless there are students below that age studying for GCE A-level examinations). Visits are not undertaken during July or August.

10.3.4 Indemnities Visitors to MoD-occupied buildings should be made aware that the Crown does not insure its buildings, or vehicles parked on its land, and therefore they should take out an indemnity accepting all responsibility in the event, for example, of an accident. Where the taking out of such an indemnity is impracticable (e.g. short-notice visitors) it has been established that where visits are in the interest of the Office, and this may be taken to include commercial and public relations purposes, MoD will accept responsibility.

10.3.5 Education authorities and schools are not required to indemnify the MoD against any claims which might arise as a result of damage or injury occurring while visits by school parties are taking place (but see section 10.4 on work experience).

### 10.4 Work experience

10.4.1 Approaches may be received at outstations from local education authorities, schools or individuals requesting the placement of school students for the purpose of work experience (i.e. the placing of a student in the work environment for periods of up to a week to enable the student to gain some experience of the transition from education to employment) and to show some of the employment options available. Such work experience trainees are not considered employees of MOD.

10.4.2 Officers-in-Charge should ensure that, before any work experience students are accepted, the relevant authority has signed a Form of Indemnity. This indemnifies the Secretary of State for Defence, his servants or agents against all loss and damage suffered by the Crown and all claims made against the Crown in respect of personal injury and damage to or loss of property arising from the attendance. The Form of Indemnity is copied at Annex A.



## 10.5 Competition

10.5.1 Increasingly, universities and colleges are becoming involved in the supply of meteorological services, often in direct competition with the local WC and Headquarters. The use of post-graduate or even undergraduate students in providing these services at low cost is a major commercial advantage to these organizations. All cases of such competition should be drawn to the attention of S&B (Marketing), and any suspected requests received at outstations for climatological or synoptic data should be referred to the appropriate Branch at Headquarters.



FORM OF INDEMNITY FOR WORK EXPERIENCE PROGRAMMES

IN CONSIDERATION of the Secretary of State for Defence (hereinafter called the Secretary of State) agreeing to provide assistance for a work experience programme to the

.....

The .....hereby agrees

1. To indemnify the Secretary of State, his servants or agents (notwithstanding any negligence or other breach of legal duty on the part of the Secretary of State, his servants or agents) against:

- a. all loss and damage suffered by the Crown, and
- b. all claims whatsoever made against the Crown in respect of personal injury (including sickness and death) and damage to or loss of property arising out of or in connection with such assistance.

2. Furthermore the .....agrees to reimburse to the Secretary of State all sums paid out by the Crown to any of its servants or agents (whether in pursuance of a legally enforceable obligation or otherwise) for the purpose of indemnifying or reimbursing such servants or agents against or in respect of any such claims.



Signed .....

for and on behalf of:

.....

Position .....

Dated .....

Witnessed .....

Address .....

.....

.....

.....



## SELECTION OF PRINTED MATERIAL FOR SCHOOL AND COLLEGE PROJECT WORK

## 10B.1 General

10B.1.1 The material listed below forms only a short selection from a wide range. For a more comprehensive list, enquiries should be directed to the Library (see Annex D to chapter 1) or the Education Service, Sutton House.

## 10B.2 Meteorological Office

10B.2.1 The Office and Her Majesty's Stationery Office (HMSO) publish a large amount of material including *The Marine Observer* and *Monthly Weather Report*. HMSO Sectional List 37 also provides a comprehensive list of publications and is available from HMSO.

## 10B.3 Royal Meteorological Society

10B.3.1 The Royal Meteorological Society publishes *Weather* magazine and has other educational material available. The address and telephone number may be found in a copy of their magazine.

## 10B.4 Textbook publishers

10B.4.1 Primary and young secondary school pupils The following books are considered to be of use:

- a. *The Ladybird Book of the Weather* by F.E. Newing and R. Bowood (Willis and Hepworth).
- b. *The Weather Guide* by A.G. Forsdyke (Hamlyn).
- c. *Weathercraft* by L.P. Smith (Blandford).
- d. *Weather Studies* by L.P. Smith (Pergamon).
- e. *The Weatherman* by D. Houghton (Ginn).
- f. *Science and the Weatherman* by T. Baker (Pergamon).
- g. *Weather in Britain* by E.W. Young (Edward Arnold).
- h. *Geography from Space* by E.C. Barrett (Pergamon).
- i. *Meteorology — Introduction to the Physics of Weather* by H.J. Tanck (Transworld).
- j. *Weather Study — An Approach to Scientific Study (A Teacher's Guide)* by J.W. Bainbridge and R.W. Stockdale (Methuen Educational).
- k. *British Weather Disasters* by I. Holford (David & Charles).
- l. *Guinness Book of Weather Facts and Feats* by I. Holford (Guinness Superlatives).
- m. *Wind, Rain and Storm* by E.M. Poxon (Ginn).
- n. *Air and Weather* by D.A. Hardy (World's Work).
- o. *Weather Observation* by Bill Giles (Educational Publications).

10B.4.2 Middle and senior secondary school pupils The following are useful:

- a. *Understanding Weather* by Sir Graham Sutton (Penguin).
- b. *The Weather* by Sir Graham Sutton (Teach Yourself Books).



- c. *The Restless Atmosphere* by F.K. Hare (Hutchinson)
- d. *Earth, The Living Planet* by M.J. Bradshaw (Hodder and Stoughton)
- e. *Know the Weather* by C.E. Wallington and D.E. Pedgley (Educational Publications)
- f. *The Air Around Us* by T.J. Chandler (Aldus)
- g. *The Weather Business — Observation, Analysis, Forecasting and Weather Modification* by B.W. Atkinson (Aldus).
- h. *Outlook (Weather Maps and Elementary Forecasting)* by G.W. White (Kandy).
- i. *Interpreting the Weather* by I. Holford (David and Charles).
- j. *Modern Meteorology and Climatology* by G.T.J. Chandler (Nelson).
- k. *Interpreting the Weather* by R.C. Sutcliffe (Weidenfeld and Nicholson).
- l. *Atmosphere, Weather and Climate* by R.G. Barry and R.J. Chorley (Methuen).
- m. *Weather and Climate* by Swante Bodin (Blandford).
- n. *Basic Windcraft. Using the Wind for Sailing* by A. Watts (David and Charles).

10B.4.3 College students The following have an emphasis on mathematics and physics:

- a. *Introduction to Meteorology* by S. Petterssen (McGraw Hill).
- b. *Introduction to Theoretical Meteorology* by S.L. Hess (Holt).
- c. *Elements of Dynamic Meteorology* by A.H. Gordon (English University Press).
- d. *Atmosphere, Weather and Climate* by R.G. Barry and R.J. Chorley (Methuen).
- e. *Synoptic Meteorology — Methods and Applications* by R.G. Barry and A.H. Perry (Methuen).
- f. *Arctic and Alpine Environment* by J.D. Ives and R.G. Barry (Methuen).
- g. *The Ceaseless Wind — An Introduction to the Theory of Atmospheric Motion* by J.A. Dutton (McGraw Hill).
- h. *The Physics of Atmospheres* by J.T. Houghton (Cambridge University Press).
- i. *The Ocean-Atmosphere System* by A.H. Perry and J.M. Walker (Longmans).
- j. *Clouds, rain and rainmaking* by B.J. Mason (Cambridge University Press).
- k. *The Physics of Clouds* by B.J. Mason (Cambridge University Press).
- l. *Introduction to Meteorological Optics* by R.A.R. Tricker (Mills and Boon).
- m. *Principles of Environmental Physics* by J.L. Monteith (Edward Arnold).

10B.4.4 Not all of the above books are in print but most can be obtained from a suitable library.