

Head 168 — HONG KONG OBSERVATORY

Controlling officer: the Director of the Hong Kong Observatory will account for expenditure under this Head.

Estimate 2006–07 **\$197.4m**

Establishment ceiling 2006–07 (notional annual mid-point salary value) representing an estimated 282 non-directorate posts as at 31 March 2006 and as at 31 March 2007 **\$100.1m**

In addition, there will be an estimated five directorate posts as at 31 March 2006 and as at 31 March 2007.

Controlling Officer's Report

Programmes

Programme (1) Weather Services	This programme contributes to Policy Area 7: Public Safety (Secretary for Economic Development and Labour).
Programme (2) Radiation Monitoring and Assessment	This programme contributes to Policy Area 9: Internal Security (Secretary for Security).
Programme (3) Time Standard and Geophysical Services	This programme contributes to Policy Area 7: Public Safety (Secretary for Economic Development and Labour).

Detail

Programme (1): Weather Services

	2004–05 (Actual)	2005–06 (Original)	2005–06 (Revised)	2006–07 (Estimate)
Financial provision (\$m)	164.3	164.9	163.3 (-1.0%)	166.2 (+1.8%)
				(or +0.8% on 2005–06 Original)

Aim

2 The aim is to provide weather forecasts and issue warnings to the public, special users, the shipping community, aircraft and aviation groups in order to reduce loss of life and damage to property, and minimise disruption to economic and social activities during hazardous weather.

Brief Description

3 The Hong Kong Observatory's Central Forecasting Office and Airport Meteorological Office are responsible for the preparation and issue of weather information, forecasts and various warnings on hazardous weather to the public, shipping community and aviation groups. The Hong Kong Observatory also promotes public awareness of, and community preparedness for, natural disasters. This work involves:

- operating a network of mostly automated weather stations;
- carrying out real-time exchange of data with meteorological centres in the world;
- receiving meteorological satellite imageries and operating weather radar systems;
- analysing meteorological data and computing the future weather by numerical modelling;
- disseminating weather information by a diversity of means;
- issuing warnings on hazardous weather such as tropical cyclones, storm surges, rainstorms, landslips, flooding, thunderstorms, windshear, fire danger and extreme hot and cold conditions; and
- conducting public talks, interviews and training courses as well as producing publicity material on hazardous weather phenomena.

4 In 2005, the Hong Kong Observatory fulfilled its performance pledge of issuing at least one bulletin every hour of the day, disseminating the bulletins within ten minutes after each hour, and maintaining, on average, a forecast accuracy score of 85% or more. Trial runs of the next generation of numerical model for weather prediction continued and a technical study on future computing resource requirements commenced. The network of lightning sensors covering the Pearl River Estuary began operation. The thunderstorm warning service was strengthened by additional lightning information provided to the public and special users through the internet. An automated service was introduced to alert container terminal operators and related sectors to the occurrence of severe gusts. Broadband internet access was also

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introduced for special clients to access the Observatory's weather services. The Observatory's website was enhanced to include real-time weather images at popular tourist spots, more forecast weather charts generated by the Observatory's numerical model and a wider range of satellite images. The replacement Dial-a-Weather system was put into operation, enhancing the capacity to handle public telephone enquiries. The Observatory's outreach programme to promote preparedness for hazardous weather was expanded, with new elements like talks to employees in weather-sensitive industries and campaigns running in collaboration with non-governmental organisations for the general public. An eight-episode TV documentary on preparedness for natural disasters was produced and screened. The Observatory maintained a close surveillance of the weather at and around the Hong Kong International Airport (HKIA) and provided aircraft with the weather information needed for operations. New products to meet user requirements were added to the Observatory's web-based aviation weather information system.

5 The key performance measures in respect of weather services are:

Targets

	Target	2004 (Actual)	2005 (Actual)	2006 (Plan)
forecasts perceived as accurate by the public (%).....	78 Λ	80	79	79
accurate public forecasts as verified by objective means (%)	85	89	91	89
accurate forecasts as assessed by ship captains (%).....	95 π	97	96	96
accurate forecasts as assessed by airline operators (%).....	95	98	98	98

Λ The target will be revised from 75% to 78% as from 2006.

π The target will be revised from 90% to 95% as from 2006.

Indicators

	2004 (Actual)	2005 (Actual)	2006 (Estimate)
calls answered by Dial-a-Weather system#.....	21 000 000	22 000 000	24 000 000
telephone enquiries answered manually	23 000	44 000 $@$	40 000
visits to Observatory's website by the public	353 000 000	524 000 000	580 000 000
companies and organisations subscribing to special weather and warning services.....	57	68	70
total revenue from above subscribers (\$m)	1.2	1.4	1.4
media interviews and public lectures/talks on weather.....	1 075	1 200	1 100
meteorological documents for flights departing Hong Kong ..	119 000	130 000	135 000
visits to the aviation weather information system.....	6 500 000	8 000 000	9 000 000

The replacement Dial-a-Weather system installed in March 2005 has absorbed the functions of the former computerised telephone enquiry system.

$@$ The increase in 2005 was mainly attributable to more enquiries on severe weather and on new services introduced such as the lightning location information service.

Matters Requiring Special Attention in 2006–07

6 During 2006–07, the Department will:

- continue to enrich the contents of the Observatory's website in response to the evolving needs of the public and further develop the delivery of weather services through the Internet;
- continue to develop the new generation of numerical weather prediction model;
- enhance the operational nowcasting system to support the warning of hazardous weather phenomena associated with rainstorms;
- continue to promote public awareness of, and preparedness for, natural disasters through various outreach activities and continuous development of educational resources;
- continue to enhance the aviation weather service through the use of technology to meet user needs; and
- install a backup Light Detection and Ranging system for the HKIA to ensure uninterrupted availability of data for windshear detection.

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Programme (2): Radiation Monitoring and Assessment

	2004–05 (Actual)	2005–06 (Original)	2005–06 (Revised)	2006–07 (Estimate)
Financial provision (\$m)	21.4	22.4	21.7 (–3.1%)	22.5 (+3.7%)
				(or +0.4% on 2005–06 Original)

Aim

7 The aim is to provide information on environmental radiation levels in Hong Kong and advise government departments on the protective action that may be necessary during nuclear emergencies.

Brief Description

8 The Hong Kong Observatory monitors ambient radiation levels in Hong Kong and conducts radiological measurements on air, soil, water and food samples. In the event of a nuclear emergency, the Observatory will provide notification and advice to government departments on the possible consequences in Hong Kong and recommend protective action. The Observatory organises training and exercises on radiation monitoring for other government departments involved in the Hong Kong contingency plan for nuclear emergencies. The work involves:

- operating a network of radiation monitoring stations, an aerial monitoring system, a radiological survey vehicle, a radiation laboratory and an emergency radiation data management system;
- keeping abreast of the latest development on the methodology for nuclear accident consequence assessment; and
- planning and participating in exercises and drills in response to nuclear emergencies.

9 In 2005, all radiation monitoring and assessment work in this programme was carried out satisfactorily. All equipment was maintained in a state of readiness. A new round of inter-comparison between Hong Kong and Guangdong on radiological measurements started. Training on radiation monitoring and assessment, as well as radiological protection, was conducted for relevant government departments and organisations involved in the contingency plan for nuclear emergencies.

10 The key performance measures in respect of radiation monitoring and assessment are:

Target

	Target	2004 (Actual)	2005 (Actual)	2006 (Plan)
data availability of radiation monitoring network (%).....	99	99.8	99.9	99

Indicators

	2004 (Actual)	2005 (Actual)	2006 (Estimate)
exercises and drills.....	16	13 ^Ψ	16
visits to the Observatory's webpage on radiation.....	340 000	380 000	400 000

Ψ Some activities were suspended due to the Sixth World Trade Organization Ministerial Conference in late 2005.

Matters Requiring Special Attention in 2006–07

11 During 2006–07, the Department will continue to:

- implement the agreed arrangements between Hong Kong and Guangdong on radiation monitoring and assessment;
- conduct in conjunction with other government departments as well as the relevant Guangdong counterparts drills and exercises on emergency response; and
- organise training on radiation monitoring and assessment.

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Programme (3): Time Standard and Geophysical Services

	2004–05 (Actual)	2005–06 (Original)	2005–06 (Revised)	2006–07 (Estimate)
Financial provision (\$m)	8.1	8.7	8.7 (—)	8.7 (—)
				(or same as 2005–06 Original)

Aim

12 The aim is to maintain the Hong Kong time standard and to provide geophysical, oceanographical, astronomical and climatological information to the user community.

Brief Description

13 The Hong Kong Observatory maintains the Hong Kong time standard and provides time signals for the public. It prepares, collates and provides geophysical, oceanographical and climatological information required for engineering planning, design and environmental impact assessments. It also keeps abreast of research and development on international issues such as global climate change and advises government departments on likely implications. This work involves:

- maintaining a caesium beam clock as the Hong Kong time standard and providing time signals for radio broadcasts, automatic telephone answering service and synchronisation of clocks via Internet;
- operating seismological, tide and water level monitoring networks and conducting data analyses;
- compiling climatological and other data; and
- providing updates on the effects of El Nino and other longer term weather phenomena on Hong Kong.

14 In 2005, the objectives and targets of this programme were generally met. With the installation of the high precision time transfer system in early 2005, the Observatory's caesium beam clock began to contribute to the determination of the Co-ordinated Universal Time by the International Bureau for Weights and Measures in France, in addition to checking the accuracy of the clock itself. A study on the changes in visibility in Hong Kong since 1968 was completed, and the results publicised. Another study on the projection of rainfall changes in Hong Kong in the 21st century was also completed, with the results publicised. After the occurrence of the disastrous tsunami in the Indian Ocean in December 2004, the Observatory enhanced its tsunami warning service by introducing tsunami information bulletins in addition to tsunami warnings to meet the public's need for information on tsunamis and to promote public awareness.

15 The key performance measures in respect of time standard and geophysical services are:

Targets

	Target	2004 (Actual)	2005 (Actual)	2006 (Plan)
time standard accuracy (microseconds per day).....	0.1	0.1	0.1	0.1
geophysical, meteorological and oceanographical data capture rate (%),...	95	99	99	99

Indicators

	2004 (Actual)	2005 (Actual)	2006 (Estimate)
visits to the Observatory's internet time service.....	290 000 000	355 000 000	420 000 000
requests for geophysical, climatological and oceanographical information and advice	856	1 060	900

Matters Requiring Special Attention in 2006–07

16 During 2006–07, the Department will:

- continue to provide information and data to users efficiently and through user-friendly means;
- continue to keep abreast of earthquake risk assessment in the region;
- develop a numerical model to improve the capability to forecast tsunamis; and
- study the long-term change in heat stress in Hong Kong.

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ANALYSIS OF FINANCIAL PROVISION

Programme	2004–05 (Actual) (\$m)	2005–06 (Original) (\$m)	2005–06 (Revised) (\$m)	2006–07 (Estimate) (\$m)
(1) Weather Services	164.3	164.9	163.3	166.2
(2) Radiation Monitoring and Assessment.....	21.4	22.4	21.7	22.5
(3) Time Standard and Geophysical Services	8.1	8.7	8.7	8.7
	193.8	196.0	193.7 (-1.2%)	197.4 (+1.9%)
				(or +0.7% on 2005–06 Original)

Analysis of Financial and Staffing Provision

Programme (1)

Provision for 2006–07 is \$2.9 million (1.8%) higher than the revised estimate for 2005–06. This is mainly due to salary increments for existing staff, filling of vacancies, and increased requirement for programming, professional support and maintenance of various meteorological systems, partly offset by the reduced requirement for replacement of obsolete or worn-out equipment.

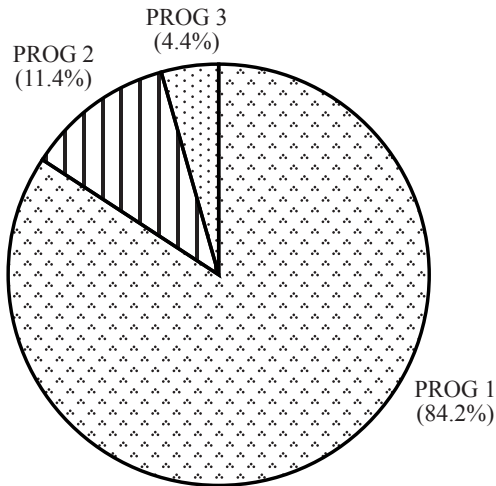
Programme (2)

Provision for 2006–07 is \$0.8 million (3.7%) higher than the revised estimate for 2005–06. This is mainly due to salary increments for existing staff, filling of vacancies, and increased requirement for consumables and maintenance of the radiation monitoring equipment and facilities.

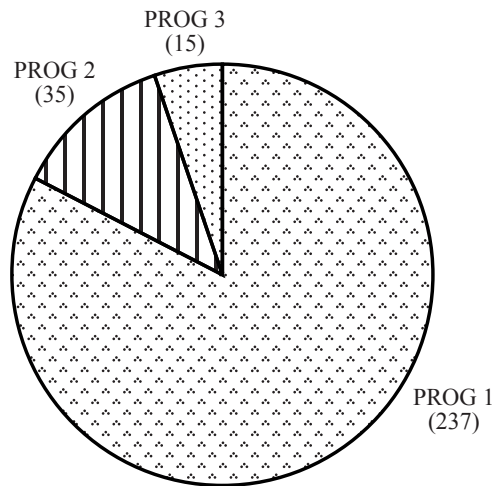
Programme (3)

Provision for 2006–07 is the same as the revised estimate for 2005–06.

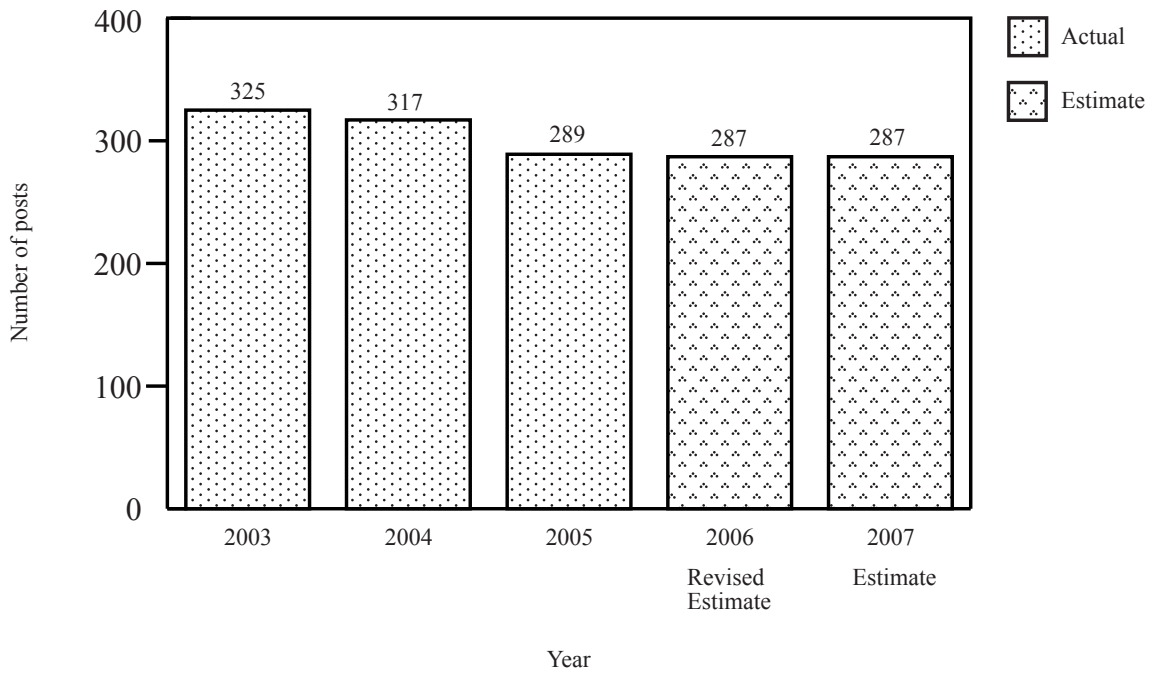
Allocation of provision to programmes (2006-07)



Staff by programme (as at 31 March 2007)



Changes in the size of the establishment (as at 31 March)



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Sub-head (Code)	Actual expenditure 2004–05	Approved estimate 2005–06	Revised estimate 2005–06	Estimate 2006–07	
	\$'000	\$'000	\$'000	\$'000	
Operating Account					
Recurrent					
000	Operational expenses	192,762	194,422	188,603	195,474
	Total, Recurrent	192,762	194,422	188,603	195,474
	Total, Operating Account	192,762	194,422	188,603	195,474
Capital Account					
Plant, Equipment and Works					
661	Minor plant, vehicles and equipment (block vote)	1,044	1,568	5,166	1,900
	Total, Plant, Equipment and Works	1,044	1,568	5,166	1,900
	Total, Capital Account	1,044	1,568	5,166	1,900
	Total Expenditure	193,806	195,990	193,769	197,374

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Details of Expenditure by Subhead

The estimate of the amount required in 2006–07 for the salaries and expenses of the Hong Kong Observatory is \$197,374,000. This represents an increase of \$3,605,000 over the revised estimate for 2005–06 and of \$3,568,000 over actual expenditure in 2004–05.

Operating Account

Recurrent

2 Provision of \$195,474,000 under *Subhead 000 Operational expenses* is for the salaries, allowances and other operating expenses of the Hong Kong Observatory.

3 The establishment as at 31 March 2006 will be 287 permanent posts. No change in establishment is expected in 2006–07. Subject to certain conditions, the controlling officer may under delegated power create or delete non-directorate posts during 2006–07, but the notional annual mid-point salary value of all such posts must not exceed \$100,106,000.

4 An analysis of the financial provision under *Subhead 000 Operational expenses* is as follows:

	2004–05 (Actual) (\$'000)	2005–06 (Original) (\$'000)	2005–06 (Revised) (\$'000)	2006–07 (Estimate) (\$'000)
Personal Emoluments				
- Salaries	130,781	126,364	122,689	126,491
- Allowances	1,580	1,936	1,486	1,486
- Job-related allowances	145	135	83	134
Personnel Related Expenses				
- Mandatory Provident Fund contribution	97	110	110	120
- Civil Service Provident Fund contribution	—	—	12	20
Departmental Expenses				
- Technical Services Agreement	2,290	2,700	2,400	1,400
- General departmental expenses	57,792	63,093	61,745	65,739
Other Charges				
- World Meteorological Organization#	77	84	78	84
	192,762	194,422	188,603	195,474

Prior to 2005–06, expenses under this item were classified as “Subventions”. Starting from 2005–06, the provision for this item is re-classified as “Other Charges” to align with the classification for similar items involving payment of membership fees/subscriptions or miscellaneous contributions.

Capital Account

Plant, Equipment and Works

5 Provision of \$1,900,000 under *Subhead 661 Minor plant, vehicles and equipment (block vote)* represents a decrease of \$3,266,000 (63.2%) against the revised estimate for 2005–06. This is mainly due to the reduced requirement for replacement of obsolete or worn-out equipment.