

As of 1 July 2005

## FACT SHEET

### TROPICAL CYCLONE NAMES

*An official broadcast on local TV and radio stations gives information and warnings on the approaching Hurricane "Ivan". People listening to these broadcasts immediately stop going about their daily routines and begin, instead, to actively prepare for prevention before the hurricane strikes. As preparations and preparedness measures have been carried out to mitigate the expected damage, there are fewer losses than would otherwise have been expected. Subsequent hurricanes will not bear the same name as Hurricane "Ivan". The several other similar events occurring every year will be designated by other names. People may ask: What are hurricanes, cyclones, and why was this one called "Ivan" ?*

#### TROPICAL CYCLONE FORMATION AND STRUCTURE

There are always clusters of clouds over the tropical oceans of the globe. When one of these occurs simultaneously and at the same location as certain other meteorological conditions, a tropical cyclone will form. The conditions for its formation and development include sea-surface temperature above 26°C, high relative humidity from the surface upwards to about six km, spiralling inflow of winds at low levels, and divergent (outflow) winds aloft. At the mature stage, the tropical cyclone can cover an area of some hundreds of kilometres in diameter. It will have a very low surface atmospheric pressure at its centre, where an eye will form. The eye will be a relatively cloud and rain-free area with light winds and with a diameter of a few dozens of kilometres. It will be surrounded by a wall of clouds producing the heaviest rainfall and the strongest winds. In the most severe cyclones, the surface wind speed exceeds 200 km/h. Change in intensity is usually a gradual process. For example, a tropical cyclone will weaken slowly when it moves over land or over cold water. However, there are relatively rare cases when pre-hurricane intensity suddenly develops into severe hurricanes within a period of hours. Every year about 80 tropical cyclones form over warm tropical oceans.

#### TERMINOLOGY AND MOVEMENT

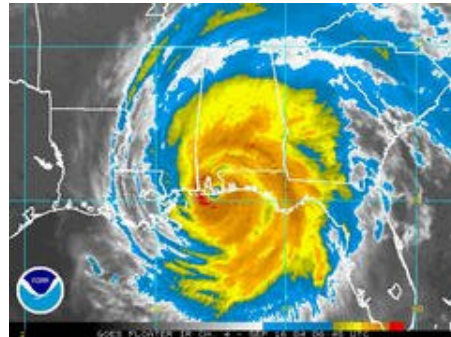
As tropical cyclones gain in intensity — with surface wind speeds exceeding 118 km/h, and bringing with them turbulent clouds and torrential rainfall — they are referred to as hurricanes in the western hemisphere, typhoons in the western North Pacific and cyclonic storms or tropical cyclones in other areas. They become real hazards for marine and aeronautical navigation. In simplified terms, it may be said that they move in the direction of the steering current, that is the wind flow in which they are embedded. With light or rapidly changing steering current, tropical cyclones will move erratically, with tracks showing sudden changes in direction or even loops.

#### IMPACT

Many tropical cyclones move inland causing both loss of life and extensive destruction of property. Although the terms used to describe their intensity relate to surface wind speed, the death and devastation they bring are due not only to strong winds, but also to the floods and storm surges they cause as well as other associated phenomena, such as tornadoes and landslides. Their effects range in severity up to among the worst of all sudden-onset natural disasters, with a death toll of nearly 300,000 people in one extreme case in Bangladesh (1970). Records show that Hurricane Andrew is the tropical cyclone which caused the most damage, estimated at US\$ 26.5 billion, when it struck Florida and Louisiana (USA) and the Bahamas in 1992. During the recent hurricane season in the Atlantic, Ivan, a Category 5 hurricane caused a death toll in Haiti approaching

3,000 and property damage in the region estimated at US\$20 billion.

In these examples of tropical cyclones which caused disasters, it was helpful to be able to identify them by name or, at least, by identification codes. This is only one of the many ways in which identification is useful. To millions of people, a tropical cyclone is an unforgettable event whose name will long be remembered.



Hurricane Ivan Sept.16, 2004 0645Z

#### WARNING SYSTEMS

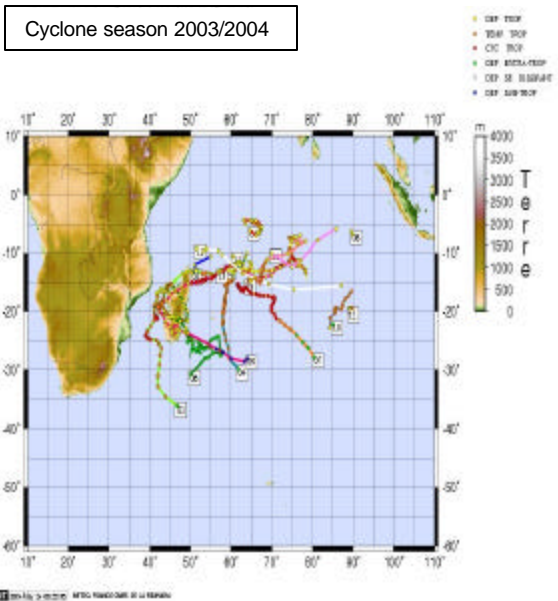
A particularly important aspect of tropical cyclones, as distinct from some other natural hazards, is the worldwide availability of early warning systems as a basis for preparedness action and, hence, disaster mitigation. As a result of international cooperation and coordination, and with the aid of meteorology and modern technology, such as satellites, weather radars and computers, all tropical cyclones around the globe are now being monitored from their early stages of formation and throughout their life time by designated Regional Specialized Meteorological Centres (RSMCs) located in Honolulu, Miami, Nadi (Fiji), New Delhi, Tokyo, and La Réunion, as well as by other centres of national Meteorological and Hydrological Services. These centres also provide advisories on the behaviour of the tropical cyclones, their movement and changes in intensity and on associated phenomena — principally storm surges and floods. They issue timely warnings to all those who are threatened. The activities are coordinated at the global and regional levels by the World Meteorological Organization through its World Weather Watch and Tropical Cyclone Programmes.

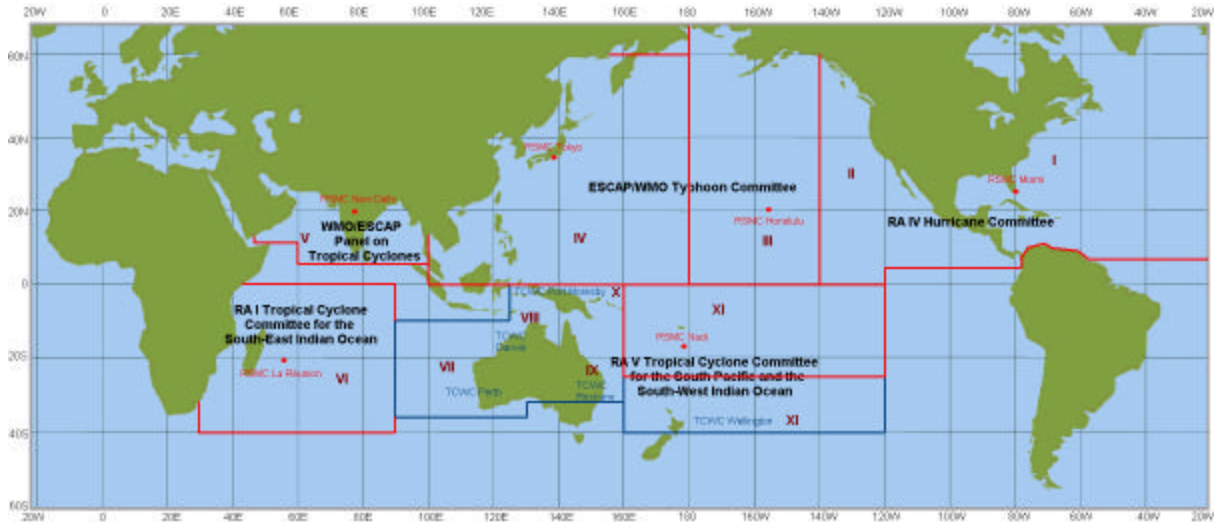
### IDENTIFICATION OF TROPICAL CYCLONES

There has always been a need to attribute unique identity to each tropical cyclone and to distinguish one from the other. The oldest way of doing this has been to state the time and the cyclone's location, principally the latitude and longitude of its centre — a rather cumbersome and often unsatisfactory method. Up until the early part of the twentieth century, some hurricanes in the Spanish-speaking islands of the Caribbean were named after the Saint's day on which they hit the island. Three such examples are the hurricanes which struck Puerto Rico: Santa Ana on 26 July 1825 and San Felipe on 13 September 1876 as well as another hurricane that occurred on the same day 52 years later and was also named San Felipe. Near the end of the nineteenth century, Clement Wragge, an Australian forecaster, reportedly named tropical cyclones after political figures whom it is said he disliked. It is recorded that on occasion he described the tropical cyclone in uncomplimentary terms, such as causing distress, displaying erratic behaviour, wandering aimlessly, or frequently changing its mind. In the early 1950s, American meteorologists used the phonetic alphabet (ABLE, BAKER, CHARLIE, etc.) to identify tropical cyclones. Starting in 1953 female names in alphabetical order were used by the United States National Weather Service. The advantages in spoken and written communication were recognized and appreciated, particularly in relation to warning services. The idea was that the names should be short, familiar to users, easy to remember and that their use would facilitate communication with the millions of people threatened by the tropical cyclone, thus avoiding the confusion which would otherwise occur when more than one tropical cyclone formed over the region at the same time. The practice soon became widespread in the western hemisphere. However, by the late 1970s, in response to requests by feminist groups in the USA, the lists of names were extended to include alternating male and female names.

By the 1970s the use of identification systems had spread to all tropical cyclone-prone regions. Towards the end of the decade and in subsequent years, such systems became international under the auspices of regional tropical cyclone committees, coordinated by the World Meteorological Organization. The detailed arrangements differ from region to region. In most regions, lists of names — usually male and female names — are drawn up by the committees, each of which has the much wider task of promoting and coordinating tropical cyclone disaster mitigation in their respective regions. The names are assigned by a designated centre, most often sequentially in alphabetical order. In two cases, the lists are rotated forward, in one other case new lists are drawn up from time to time, and in yet other cases there is one circular list. It is a widespread practice that when a tropical cyclone attains notoriety, when for example, it inflicts a heavy death toll or causes devastation of property, its name is retired, that is taken off the list and replaced with another name, where appropriate, beginning with the same letter and of the same gender.

Name lists had been established by some countries, such as those by the United States for the central North Pacific and, for national use by the Philippines. In the past, names which had been given by the Guam Joint Typhoon Warning Center to typhoons in the western North Pacific had also sometimes been used by other countries in the region.





Regions of tropical cyclone formation: committees and centres providing and assigning names

A new method of assigning names to tropical cyclones in the western North Pacific and South China Sea (Region IV) was introduced at the start of the new millennium by the Typhoon Committee, the regional tropical cyclone intergovernmental body with responsibility for that region. The name will be followed by the four-digit identification code already in use in the region. The wide ranging meanings and origins of the names — Asian names, including a few peoples' names — were widely publicized. The names, in the circular list, were contributed by the Members in the region, taken in alphabetical order of Member countries (Cambodia; China; DPR Korea; Hong Kong, China; Japan; Lao PDR; Macao, China; Malaysia; Philippines; Republic of Korea; Singapore; Thailand; USA; Viet Nam), and are for use by the international community. These Members in the region may prepare equivalent lists of names in their vernacular language for internal use. The names of notorious typhoons will be withdrawn and replaced with another name by the Typhoon Committee.

The Panel on Tropical Cyclones for the Bay of Bengal and the Arabian Sea implemented its own name list, started to use the list in September 2004. However, as typhoon region, the names are followed by an identification code comprising the last two digits of the year followed by a two-digit sequential number and, in two cases, preceded by a geographic indicator. For example, the first named cyclone of 2004 was identified as ONIL ARB 0403 and the second named cyclone as AGNI ARB 0404 (ARB stands for Arabian Sea).

***Experience has indicated that the use of names for tropical cyclones contributes to public awareness and alertness and facilitates communication including the dissemination of the official national warnings of tropical cyclones.***

### TROPICAL CYCLONE DISASTER MITIGATION

The understanding of tropical cyclones and the dangers they pose, the appropriate pre-arranged disaster prevention and preparedness measures, together with the responses by organizations, communities, groups and individuals to the official warnings, have been highly effective in mitigating tropical cyclone disasters, thus saving numerous lives and substantially reducing the potential devastation they could cause. Some examples may be given:

- In the USA, Hurricane Andrew, which hit southern Florida and parts of Louisiana in August 1992, caused property damage estimated at a staggering USD 26.5 billion but only 23 lives were lost, the latter remarkably low number attributable to a large extent to excellent warnings, disaster preparedness and other hurricane disaster mitigation measures.
- In China, effective warnings during 1998 contributed to reducing loss of life to only six in two major typhoons which affected over one million people in one case and over three quarters of a million in the other. The total damage was estimated at USD 200 million.
- In Jamaica, the decrease in the death tolls from 152 to 45 people caused by similar hurricanes in 1951 and 1988, respectively, was attributed in large part to better hurricane warnings, a community flood-warning system in one of the most vulnerable areas, which proved effective and disaster preparedness activities in the 1980s.
- In Bangladesh, three severe tropical cyclones, all making landfall at the time of high astronomical tide on the Bangladesh coast, in 1970, 1991 and 1994 took 300,000, 134,000 and 200 lives respectively. A detailed local case study concluded that the decrease in loss of life was due mainly to a tremendous improvement in the cyclone warning system.

The conclusions that may be reached are that the death tolls due to tropical cyclones world-wide have decreased remarkably in the past years and can be further diminished by strengthened disaster mitigation particularly in the developing countries where most of the deaths occur.

**TROPICAL CYCLONE NAMES**

**I – Caribbean Sea, the Gulf of Mexico and the North Atlantic Ocean**

2005	2006	2007	2008	2009	2010
Arlene	Alberto	Andrea	Arthur	Ana	Alex
Bret	Beryl	Bary	Bertha	Bill	Bonnie
Cindy	Chris	Chantal	Cristobal	Claudette	Colin
Dennis	Debby	Dean	Dolly	Danny	Danielle
Emily	Ernesto	Erin	Edouard	Erika	Earl
Franklin	Florence	Felix	Fay	Fred	Fiona
Gert	Gordon	Gabrielle	Gustav	Grace	Gaston
Harvey	Helene	Humberto	Hanna	Henri	Hermine
Irene	Isaac	Ingrid	Iko	Ida	Igor
Jose	Joyce	Jerry	Josephine	Joaquin	Julia
Katrina	Kirk	Karen	Kyle	Kate	Karl
Lee	Leslie	Lorenzo	Lili	Larry	Lisa
Maria	Michael	Melissa	Marco	Mindy	Matthew
Nate	Nadine	Noel	Nana	Nicolas	Nicole
Ophelia	Oscar	Olga	Omar	Odette	Otto
Philippe	Patty	Pablo	Paloma	Peter	Paula
Rita	Rafael	Rebekah	Rene	Rose	Richard
Stan	Sandy	Sebastien	Sally	Sam	Shary
Tammy	Tony	Tanya	Teddy	Teresa	Tomas
Vince	Valerie	Van	Vicky	Victor	Virginie
Wilma	William	Wendy	Wilfred	Wanda	Walter

The Greek alphabet (Alpha, Beta, etc.) will be used to name additional cyclones.  
Lists rotated forward: 2011 as in 2005, etc.

**II – Eastern North Pacific Ocean**

2005	2006	2007	2008	2009	2010
Adrian	Aletta	Alvin	Alma	Andres	Agatha
Beatriz	Bud	Barbara	Boris	Blanca	Blas
Calvin	Carlotta	Cosme	Cristina	Carlos	Celia
Dora	Daniel	Dalila	Douglas	Dolores	Darby
Eugene	Emilia	Erick	Elida	Enrique	Estelle
Fernanda	Fabio	Flossie	Fausto	Felicia	Frank
Greg	Gilma	Gil	Genevieve	Guillermo	Georgette
Hilary	Hector	Henriette	Hernan	Hilda	Howard
Irwin	Ileana	Ivo	Iselle	Ignacio	Isis
Jova	John	Juliette	Julio	Jimena	Javier
Kenneth	Kristy	Kiko	Karina	Kevin	Kay
Lidia	Lane	Lorena	Lowell	Linda	Lester
Max	Miriam	Manuel	Marie	Marty	Madeline
Norma	Norman	Narda	Norbert	Nora	Newton
Otis	Olivia	Octave	Odile	Olaf	Orlene
Pilar	Paul	Priscilla	Polo	Patricia	Paine
Ramon	Rosa	Raymond	Rachel	Rick	Roslyn
Selma	Sergio	Sonia	Simon	Sandra	Seymour
Todd	Tara	Tico	Trudy	Terry	Tina
Veronica	Vincente	Velma	Vance	Vivian	Virgil
Wiley	Willa	Wallis	Winnie	Waldo	Winifred

Other names available 2005, 2007, etc.: Xina, York, Zelda  
Other names available 2006, 2008 etc.: Xavier, Yolanda, Zeke

List rotated forward: 2011 as in 2005, etc.

**III - Central North Pacific Ocean  
Circular list**

Akoni	Aka	Alika	Ana
Ema	Ekeka	Ele	Ela
Hana	Hali	Huko	Halola
Io	Ioalana	Ioke	Iune
Keli	Keoni	Kika	Kimo
Lala	Li	Lana	Loke
Moke	Mele	Maka	Malla
Nele	Nona	Neki	Niala
Oka	Oliwa	Oleka	Oko
Peke	Paka	Peni	Pali
Uleki	Upana	Ulia	Ulika
Wila	Wene	Wali	Walaka

**V - Bay of Bengal and Arabian Sea**

I	II	III	IV
Onil	Ogni	Nisha	Giri
Agni	Akash	Bijli	Jal
Hibaru	Gonu	Aila	Keila
Pyarr	Yemyin	Phyan	Thane
Baaz	Sidr	Ward	Murjan
Fanoos	Nargis	Laila	Nilam
Mala	Abe	Bandu	Mahasen
Mukda	KhaiMuk	Phet	Phailin
Helen	Chapala	Ockhi	Fani
Lehar	Megh	Sagar	Vayu
Madi	Vaali	Baazu	Hikaa
Nanauk	Kyant	Daye	Kyarr
Hudhud	Nada	Luban	Maha
Nilofar	Vardah	Titli	Bulbul
Priya	Sama	Das	Soba
Komen	Mora	Phethai	Amphan

**IV - Western North Pacific Ocean and South China Sea  
Circular list**

Damrey	Kong-rey	Nakri	Krovanh	Sarika
Longwang	Yutu	Fengshen	Dujuan	Haima
Kirogi	Toraji	Kalmaegi	Maemi	Meari
Kai-tak	Man-yi	Fung-wong	Choi-wan	Ma-on
Tembin	Usagi	Kammuri	Koppu	Tokage
Bolaven	Pabuk	Phanfone	Ketsana	Nockten
Chanchu	Wutip	Vongfong	Parma	Muifa
Jelawat	Sepat	Nuri	Melor	Merbok
Ewiniar	Fitow	Sinlaku	Nepartak	Nanmadol
Billis	Danas	Hagupit	Lupit	Talas
Kaemi	Nari	Changmi	Sudal	Noru
Prapiroon	Wipha	Mekkhala	Nida	Kulap
Maria	Francisco	Higos	Omais	Roke
Saomai	Lekima	Bavi	Conson	Sonca
Bopha	Krosa	Maysak	Chanthu	Nesat
Wukong	Haiyan	Haishen	Dianmu	Haitang
Sonamu	Podul	Pongsona	Mindulle	Nalgae
Shanshan	Lingling	Yanyan	Tingting	Banyan
Yagi	Kajiki	Kujira	Kompasu	Washi
Xangsane	Faxai	Chan-hom	Namtheun	Matsa
Bebinca	Peipan	Linfa	Malou	Sanvu
Rumbia	Tapah	Nangka	Meranti	Mawar
Soulik	Mitag	Soudelor	Rananim	Guchol
Cimaron	Hagibis	Molave	Malakas	Talim
Chebi	Noguri	Koni	Megi	Nabi
Durian	Rammasun	Morakot	Chaba	Khanun
Utor	Matmo	Etau	Aere	Vicente
Trami	Halong	Vamco	Songda	Saola

**VI - South-West Indian Ocean**  
*Circular list*

2004-2005*	2005-2006*
AROLA	ALVIN
BENTO	BOLOETSE
CHAMBO	CARINA
DAREN	DIWA
ERNEST	ELIA
FELAPI	FARDA
GERARD	GUDUZA
HENNIE	HELIO
ISANG	ISABELLA
JULIET	JAONE
KALO	KUNDAI
LILIAN	LINDSAY
MADI	MARINDA
NEDDY	NADETY
OULEDI	OTILE
PATRICIA	PINDILE
QIQITA	QUINCY
RAMON	RUGARE
SOPANI	SEBINA
TINA	TIMBA
ULA	USTA
VERA	VELO
WILLEM	WILBY
XAOKA	XANDA
YELDA	YURI
ZUZE	ZOELLE

\*Year: August to July

**VII - South-East Indian Ocean**  
*Circular list*

Alex	Adeline	Alison
Bessi	Bertie	Billy
Clancy	Clare	Cathy
Dianne	Daryl	Damien
Errol	Emma	Ellie
Fiona	Floyd	Frederic
Graham	Glenda	Gabrielle
Harriet	Hubert	Hamish
Inigo	Isobel	Ilsa
Jana	Jacob	Joseph
Ken	Kara	Kirrily
Linda	Lee	Leon
Monty	Melanie	Marcia
Nicky	Nicholas	Norman
Oscar	Ophelia	Olga
Phoebe	Pancho	Paul
Raymond	Rosie	Robyn
Sally	Selwyn	Sean
Tim	Tiffany	Terri
Vivienne	Victor	Vincent
Willy	Zelia	Walter

**VIII - Arafura Sea and Gulf of Carpentaria**  
*Circular list*

Amelia	Alistair
Bruno	Bonnie
Coral	Craig
Dominic	Debbie
Esther	Evan
Ferdinand	Farrah
Gretel	George
Hector	Helen
Irma	Ira
Jason	Jasmine
Kay	Kim
Laurence	Laura
Marian	Matt
Neville	Narelle
Olwyn	Oswald
Phil	Penny
Raquel	Russell
Sid	Sandra
Tasha	Trevor
Verdun	Valerie
Winsome	Warwick

**IX - Coral Sea**  
*Circular list*

Alfred	Alice	Anika
Blanch	Bruce	Bernie
Charles	Cecily	Claudia
Denise	Dennis	Des
Ernie	Edna	Erica
Frances	Fletcher	Fritz
Greg	Gillian	Grace
Hilda	Harold	Harvey
Ivan	Ita	Ingrid
Joyce	Jack	Jim
Kelvin	Kitty	Kate
Lisa	Les	Larry
Marcus	May	Monica
Nora	Nathan	Nelson
Owen	Olinda	Odette
Polly	Pete	Pierre
Richard	Rona	Rebecca
Sadie	Stan	Sandy
Theodore	Tammy	Tania
Verity	Vaughan	Vernon
Wallace	Wylva	Wendy

**- Solomon Sea and Gulf of Papua  
Circular list**

Alu	Maila
Buri	Nou
Dodo	Obaha
Emau	Paia
Fere	Ranu
Guba	Sabi
Hibu	Tau
Ila	Ume
Kama	Vali
Lobu	Wau

**XI - South Pacific  
Circular list**

Ana	Arthur	Atu	Amos	Alvin
Bina	Becky	Bune	Bart	Bela
Cody	Cliff	Cyril	Colin	Chip
Dovi	Daman	Daphne	Donna	Denia
Eva	Elisa	Evan	Ella	Eden
Fili	Funa	Freda	Frank	Fotu
Gina	Gene	Garry	Gita	Glen
Hagar	Hettie	Haley	Hali	Hart
Irene	Innis	Ian	Iris	Ira
Judy	Joni	June	Jo	Julie
Kerry	Ken	Koko	Kala	Kevin
Lola	Lin	Lusi	Leo	Louise
Meena	Mick	Mike	Mona	Mal
Nancy	Nisha	Nute	Neil	Nat
Olaf	Oli	Odile	Oma	Olo
Percy	Pat	Pam	Pami	Pita
Rae	Rene	Reuben	Rita	Rex
Sheila	Sarah	Solo	Sarai	Suki
Tam	Tomas	Tuni	Tino	Troy
Urmil		Ula		
Vaianu	Vania	Victor	Vicky	Vanessa
Wati	Wilma	Winston	Wiki	Wano
Xavier				
Yani	Yasi	Yalo	Yolande	Yvonne
Zita	Zaka	Zena	Zazu	Zidane

TCP REGIONAL BODIES				
ESCAP/WMO TYPHOON COMMITTEE	WMO/ESCAP PANEL ON TROPICAL CYCLONES	RA I TROPICAL CYCLONE COMMITTEE FOR THE S.W. INDIAN OCEAN	RA IV HURRICANE COMMITTEE	RA V TROPICAL CYCLONE COMMITTEE FOR THE S. PACIFIC AND S.E. INDIAN OCEAN
<b>(14 Members)</b>	<b>(8 Members)</b>	<b>(14 Members)</b>	<b>(26 Members)</b>	<b>(17 Members)</b>
CAMBODIA CHINA DEM. PEOPLE'S REP. OF KOREA HONG KONG, CHINA JAPAN LAO PDR MACAO, CHINA MALAYSIA PHILIPPINES REPUBLIC OF KOREA SINGAPORE THAILAND USA VIET NAM, SOCIALIST REPUBLIC OF	BANGLADESH INDIA MALDIVES MYANMAR OMAN PAKISTAN SRI LANKA THAILAND	BOTSWANA COMOROS FRANCE LESOTHO MADAGASCAR MALAWI MAURITIUS MOZAMBIQUE NAMIBIA REP. OF SOUTH AFRICA SEYCHELLES SWAZILAND UNITED REP. OF TANZANIA ZIMBABWE	ANTIGUA & BARBUDA BAHAMAS BARBADOS BELIZE BRITISH CARIBBEAN TERRITORIES CANADA COLOMBIA COSTA RICA CUBA DOMINICA DOMINICAN REPUBLIC EL SALVADOR FRANCE GUATEMALA HAITI HONDURAS JAMAICA MEXICO NETH. ANTILLES AND ARUBA NICARAGUA PANAMA ST. LUCIA TRINIDAD AND TOBAGO UK USA VENEZUELA	AUSTRALIA COOK ISLANDS FIJI FRENCH POLYNESIA INDONESIA KIRIBATI MICRONESIA NEW CALEDONIA NEW ZEALAND NIUE PAPUA NEW GUINEA SAMOA SOLOMON ISLANDS TONGA UNITED KINGDOM USA VANUATU  <b>Non-Members of WMO (6):</b> - EAST TIMOR - MARSHALL ISLANDS - NAURU - PALAU - TOKELAU - TUVALU