

**IV INTERNATIONAL PORT METEOROLOGICAL  
WORKSHOP, ORLANDO FLORIDA 8-10 DEC.2010  
HOSTED BY W.M.O. & N.O.A.A. - N.D.B.C.**

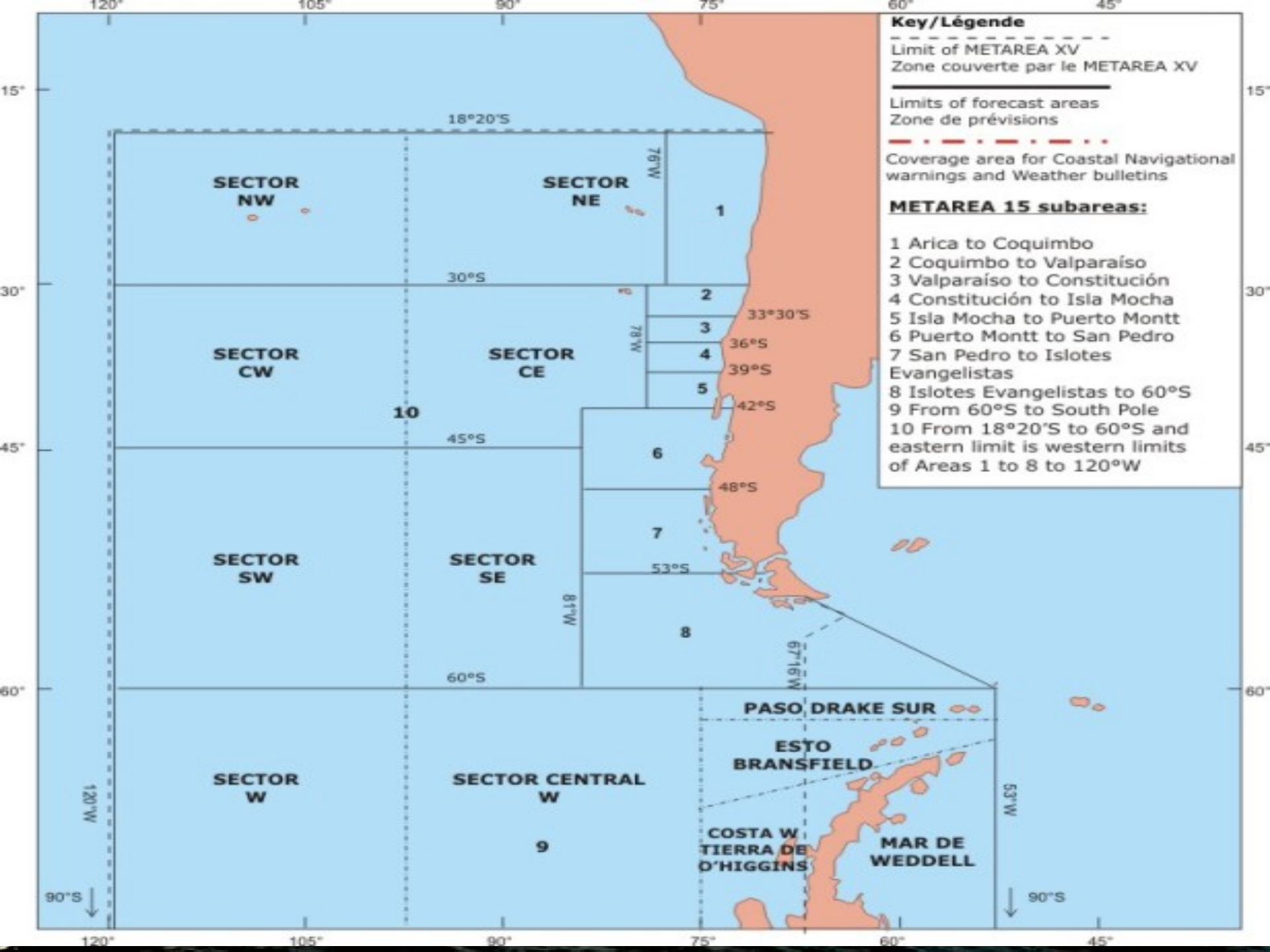
**CHILEAN NAVY WEATHER SERVICE  
LCDR. ALEJANDRO DE LA MAZA**



# LIMITS OF METAREAS

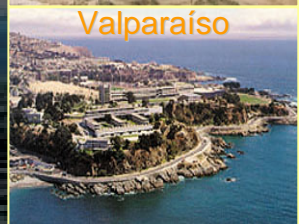
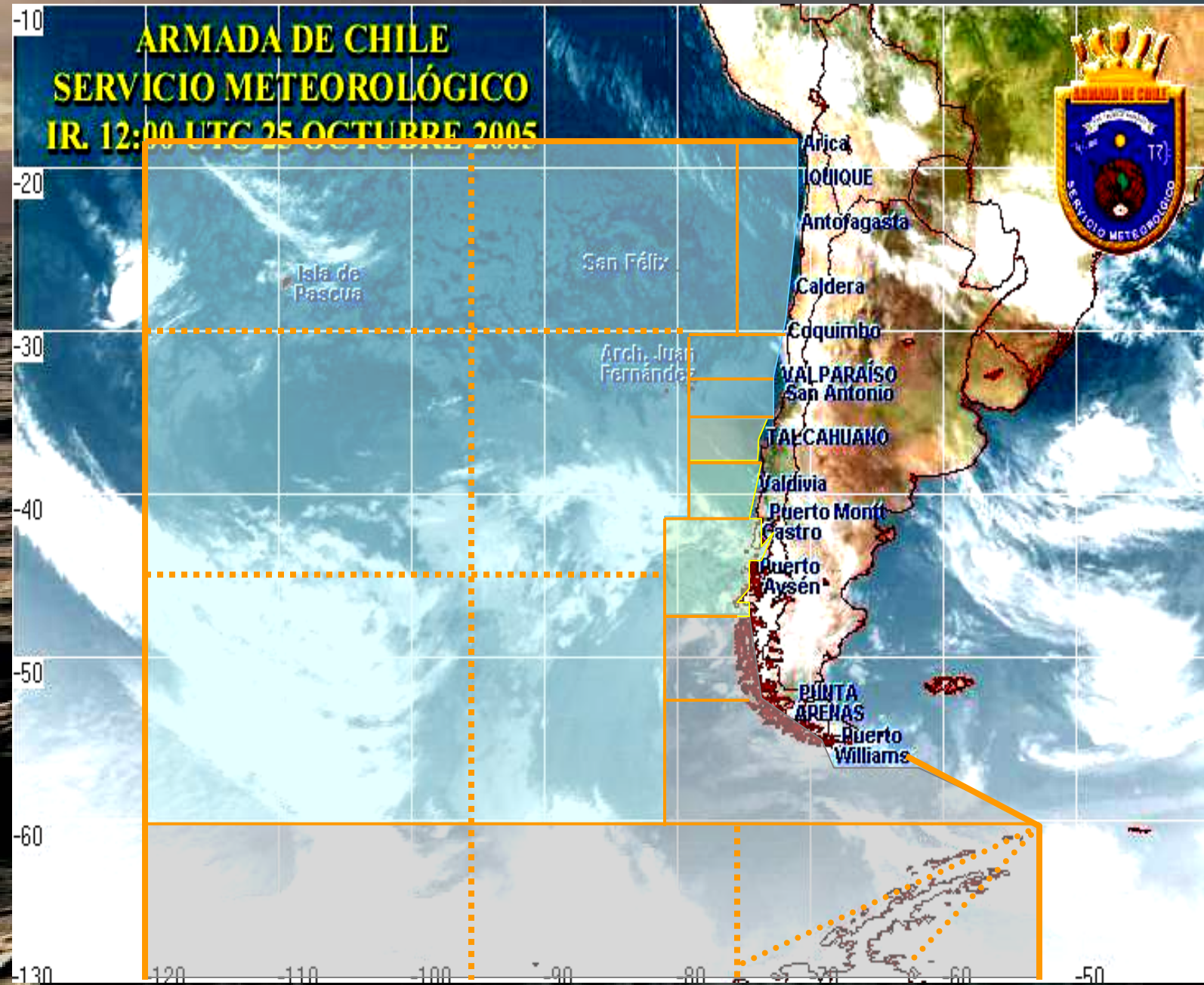


\* The GMDSS is under implementation for the Arctic METAREAS and is expected to be fully operational by 2010/11

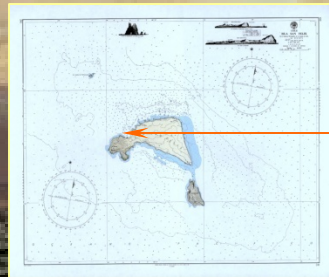


# CHILEAN NAVY WEATHER CENTERS UNDER MARITIME AUTHORITIES

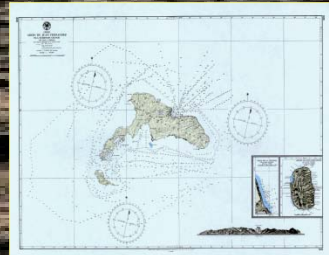
**ARMADA DE CHILE**  
**SERVICIO METEOROLÓGICO**  
**IR. 12:00 UTC 25 OCTUBRE 2005**



# COASTAL SYNOPTIC WEATHER STATIONS NETWORK



85452 Isla San Félix (1977)



C.P. Hanga Roa (2005)



89607 Base Naval Arturo Prat



G.M. Arica (1992)  
G.M. Iquique (1992)

C.P. Mejillones (2003)  
G.M. Antofagasta (1992)

G.M. Caldera (1992)

85500 Faro Punta Tortuga (1968)  
C.P. Los Vilos (1998)

85556 Viña del Mar (1989)  
C.P. Valparaíso (2003)

85558 CENMETEOVALP (2002)

85564 Faro Punta Panul (1980)

85648 Faro Cabo Carranza (1968)

85679 Faro Isla Quiriquina (1984)

C.P. Lirquén (2003)

85680 METEOTALC (2005)

C.P. Lebu (2003)

Faro Punta Hualpén (2007)

85732 Faro Isla Mocha (1968)

C.P. Maullín (2005)

85812 Faro Punta Corona (1968)

85802 METEOPMO (2004)

85834 Faro Isla Guafo (1968)

C.P. Melinka (2004)

85889 Faro Cabo Raper (1968)

85894 Faro San Pedro (1968)

85931 Faro Punta Dungenness (1968)

85921 C.P. Puerto Natales (2002)

85930 Faro Islotes Evangelistas (1968)

85935 METEOMAG (1971)

85937 Base Naval Isla Dawson (1988)

85967 Puerto Williams (1968)

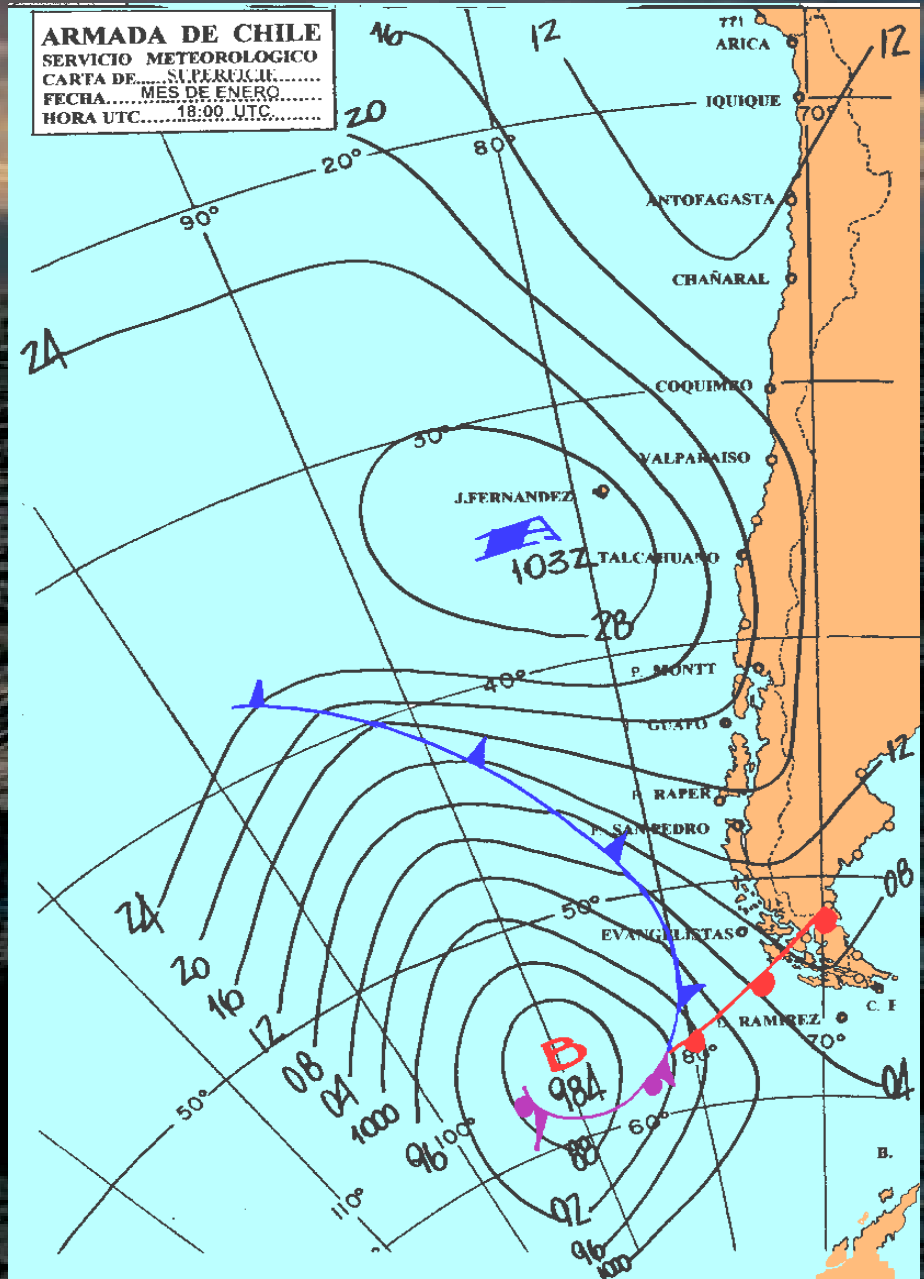
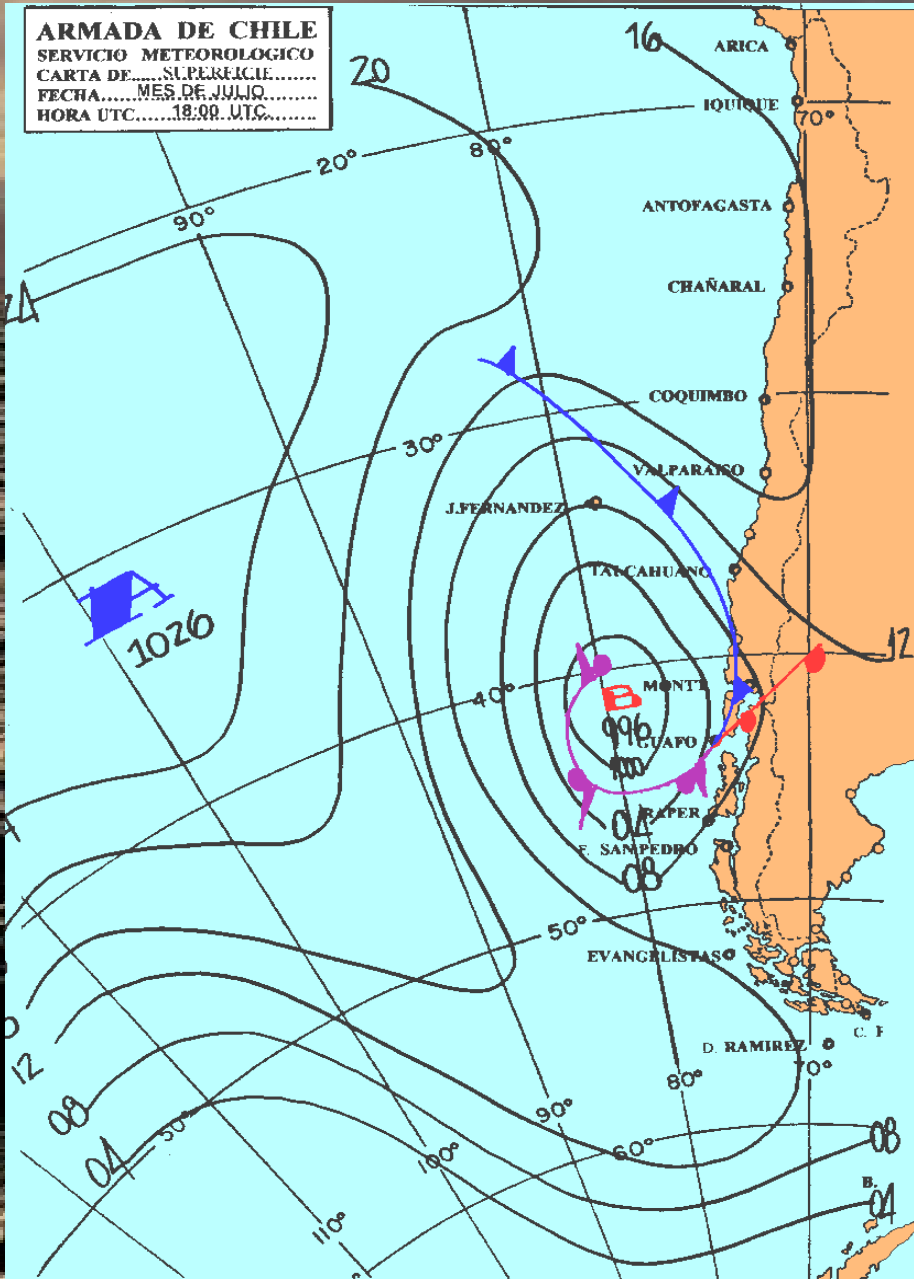
85969 Faro Isla Nueva (1968)

85970 Faro Cabo de Hornos (1982)

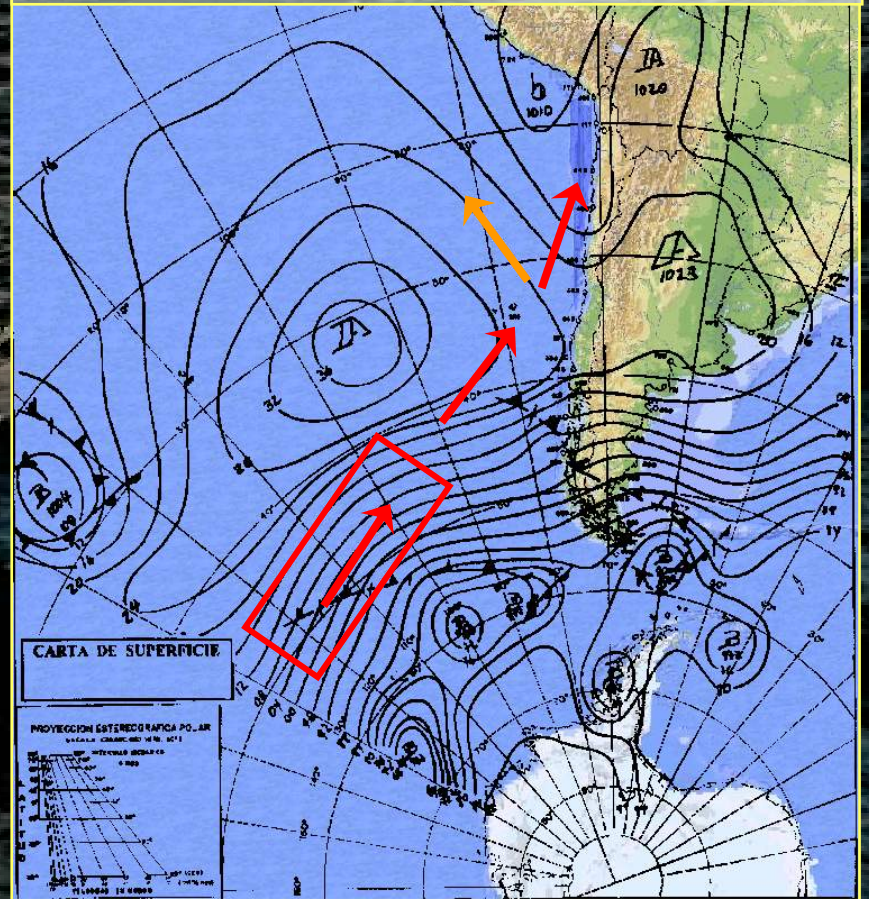
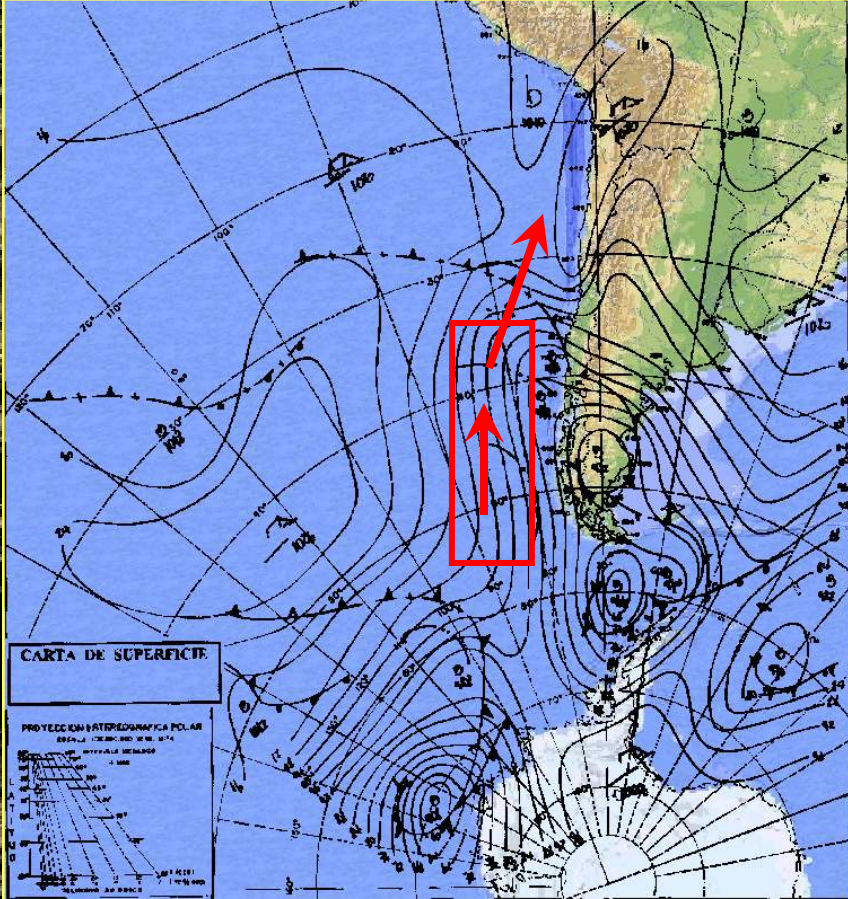
85972 Islas Diego Ramírez (1968)



# GENERAL WINTER AND SUMMER CONDITIONS



# SWELL KNOWN PATRONS





[http://polar.ncep.noaa.gov/waves/latest\\_run/nww3\\_pa.anim.gif](http://polar.ncep.noaa.gov/waves/latest_run/nww3_pa.anim.gif)  
[http://polar.ncep.noaa.gov/waves/latest\\_run/nww3\\_pa.anim.2.gif](http://polar.ncep.noaa.gov/waves/latest_run/nww3_pa.anim.2.gif)  
[http://polar.ncep.noaa.gov/waves/latest\\_run/nww3\\_pa.anim.3.gif](http://polar.ncep.noaa.gov/waves/latest_run/nww3_pa.anim.3.gif)

NWW3 20100804 t12z

hindcast

NWW3 20100804 t12z

hindcast

NWW3 20100804 t12z

hindcast

Global 1.25x1 degree model

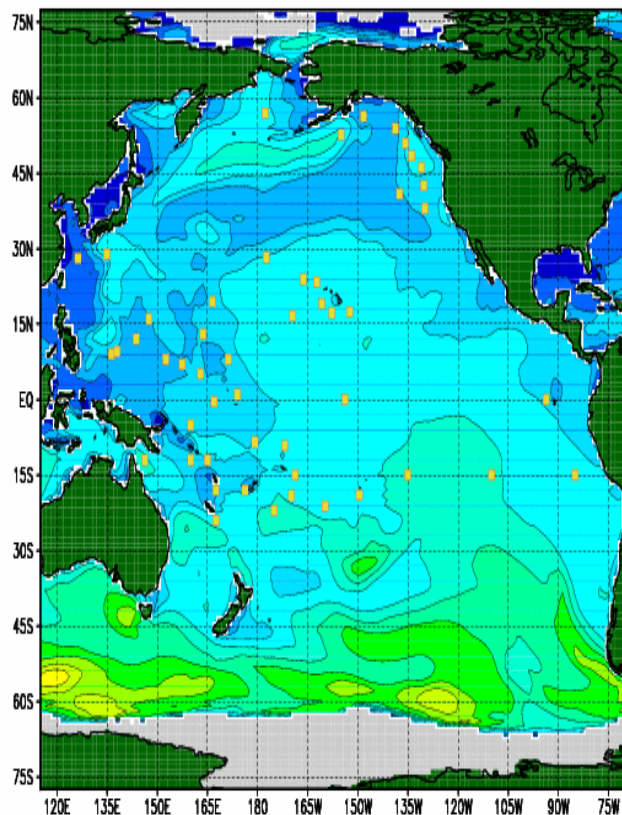
valid 2010/08/04 06z

Global 1.25x1 degree model

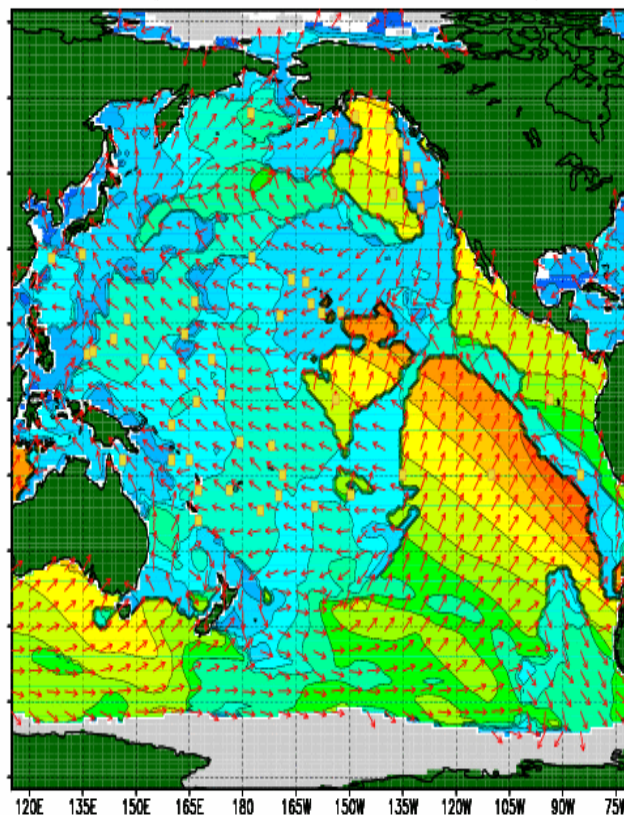
valid 2010/08/04 06z

Global 1.25x1 degree model

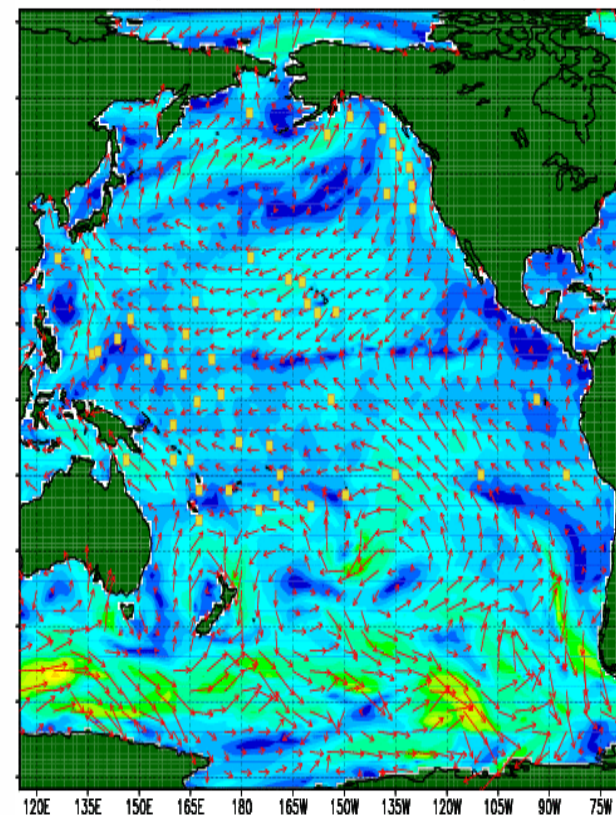
valid 2010/08/04 06z



wave height (shaded, m)

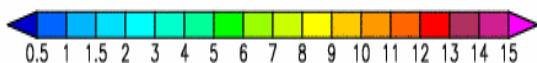


peak wave period (shaded, s) and direction (vector, not scaled)

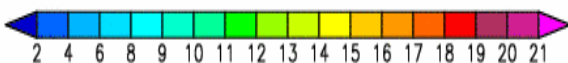


wind speed (shaded, knots) and direction (vector)

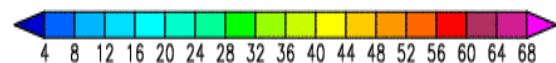
NOAA/NWS/NCEP Marine Modeling and Analysis Branch, 2010/08/04



NOAA/NWS/NCEP Marine Modeling and Analysis Branch, 2010/08/04



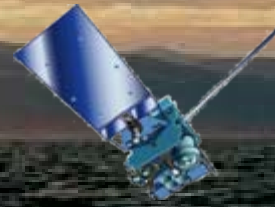
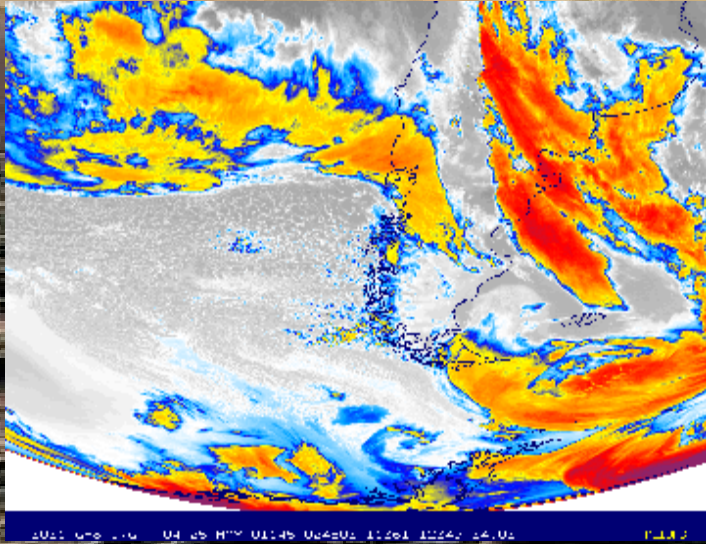
NOAA/NWS/NCEP Marine Modeling and Analysis Branch, 2010/08/04





# METEOROLOGICAL INFORMATION BROADCASTING

36 coastal weather stations 35 automated and 07 voluntary ships (BE & S.P.K.)



**INMARSAT  
SAFETYNET  
HF - VHF  
NAVTEX**



**TE - FAX  
INTERNET**



21.170 harbor, bay, channels and oceanic area forecasts (zones 1 to 10).

355 swell special bulletins and weather warnings.

4.428 surface maps, wind, waves and ice charts, satellite images (C.B.V.-C.B.M.)





**Caution:** The Internet is not part of the Maritime Safety Information's operational data stream and should never be relied upon as a means to obtain the latest forecast and warning information. Access to the Site may be interrupted or delayed from time to time, update may also experience occasional gaps. Please refer to OFFICIAL sources, Inmarsat SafetyNET or international NAVTEX services, for more complete information.

Global  
 Maritime  
 Distress and  
 Safety  
 System

[HOME PAGE - Metarea XV](#)

[HOME PAGE](#)

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- [METAREA III](#)
- [METAREA IV](#)
- [METAREA V](#)
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- [METAREA VII](#)
- [METAREA VIII\\_N](#)
- [METAREA VIII\\_S](#)
- [METAREA IX](#)
- [METAREA X](#)
- [METAREA XI](#)
- [METAREA XII](#)
- [METAREA XIII](#)
- [METAREA XIV](#)
- [METAREA XV](#)**
- [METAREA XVI](#)

**METAREA XV :** The South Pacific and Southern Oceans south of 18°21'S following the coast of Chile to the longitude of Cape Horn in 67°16'W, and 120°W

<b>Issuing Service</b> Chile	<b>Satellite Ocean Regions (scheduled bulletins)</b> AOR (W)
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NAME	DATE
<a href="#">HIGH SEAS FORECAST ANTARCTIC</a>	June 06 2010 - 23:43:13 UTC
<a href="#">HIGH SEAS FORECAST</a>	June 06 2010 - 23:43:13 UTC
<a href="#">HIGH SEAS FORECAST COASTAL</a>	June 06 2010 - 23:44:21 UTC
<a href="#">HIGH SEAS FORECAST COASTAL</a>	June 06 2010 - 23:44:21 UTC
<a href="#">HIGH SEAS FORECAST COASTAL</a>	June 06 2010 - 23:43:14 UTC

[Chilean Navy Weather Service Website](#)  
[Chile National Meteorological Service Website](#)

[General information \(including maps\)](#)

[Metarea map](#)

**Page Date :** June 06 2010 - 23:55:23 UTC

*You can bookmark this page for future direct access*

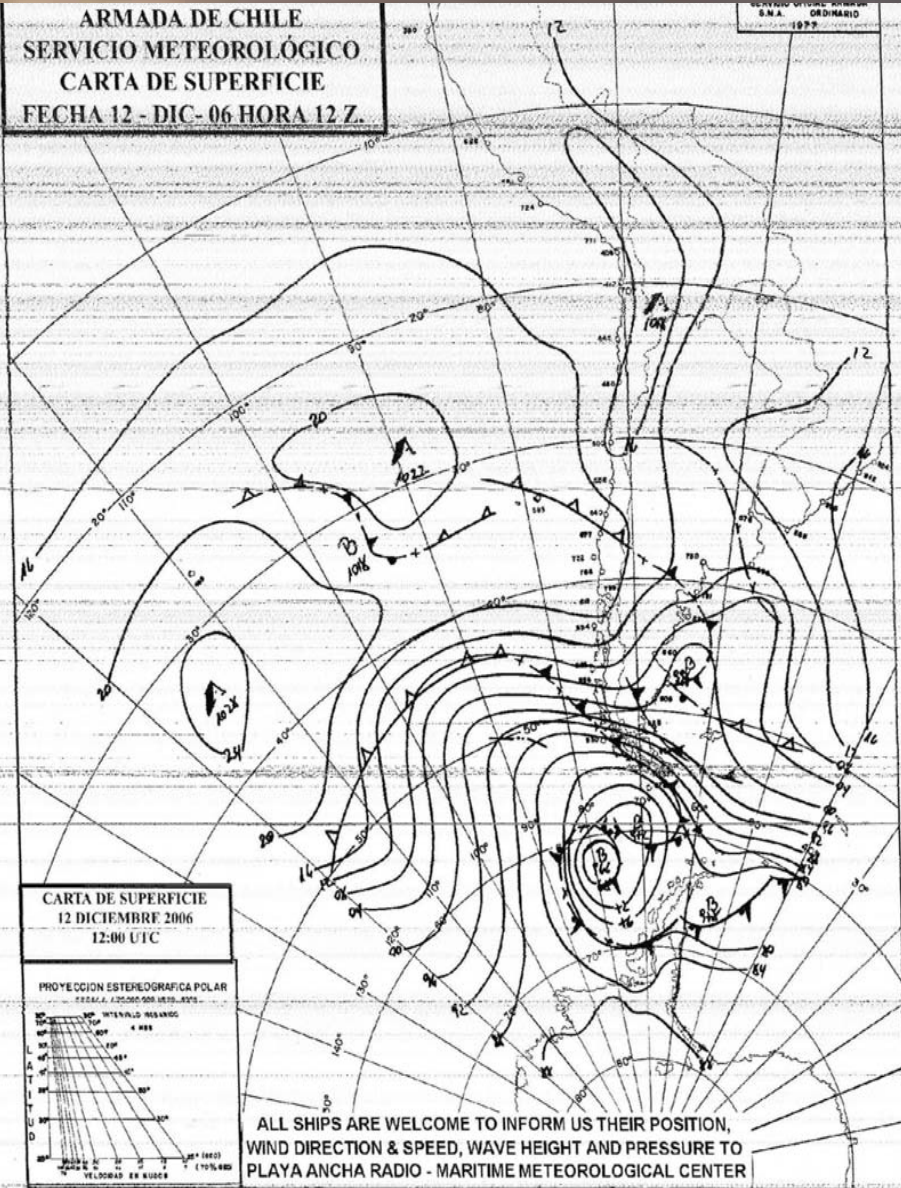
- [METAREA XVII](#)
- [METAREA XVIII](#)

# IDENTIFIED USERS OF MARINE WEATHER INFORMATION



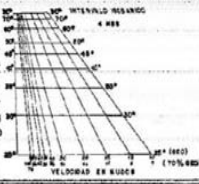
# NEW SCHEDULES AND FEQUENCIES FOR RADIOFACSIMILE BROADCASTING

ARMADA DE CHILE  
SERVICIO METEOROLÓGICO  
CARTA DE SUPERFICIE  
FECHA 12 - DIC - 06 HORA 12 Z.



CARTA DE SUPERFICIE  
12 DICIEMBRE 2006  
12:00 UTC

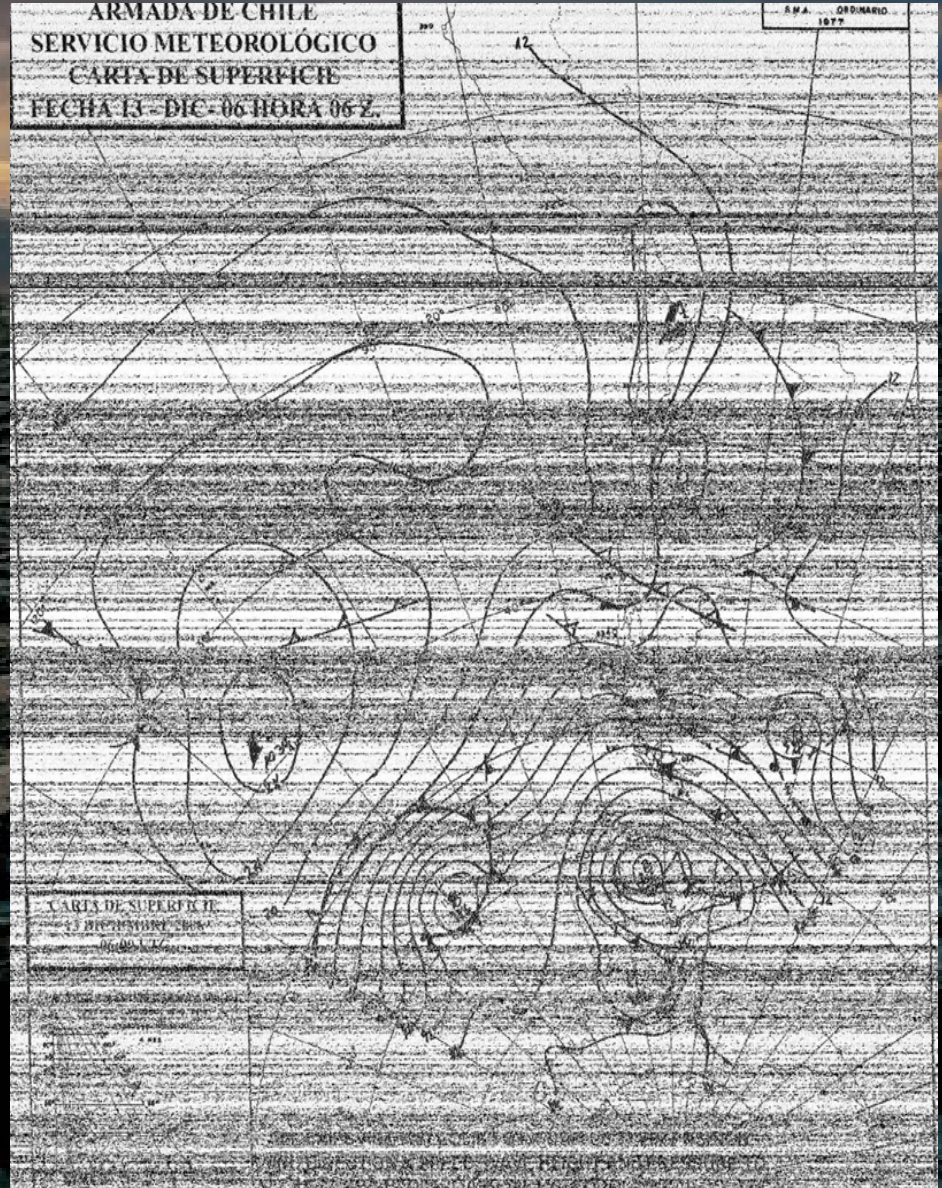
PROYECCION ESTEREOGRAFICA POLAR  
Escala: 1:20,000,000 UTM 18Q UTM 18Q



ALL SHIPS ARE WELCOME TO INFORM US THEIR POSITION,  
WIND DIRECTION & SPEED, WAVE HEIGHT AND PRESSURE TO  
PLAYA ANCHA RADIO - MARITIME METEOROLOGICAL CENTER

SE INVITA A LAS NAVES Y EMBARCACIONES A QUE INFORMEN SU POSICIÓN, DIRECCIÓN E  
INTENSIDAD DEL VIENTO, ALTURA DE LA OLA EN METROS Y PRESIÓN ATMOSFÉRICA, AL  
CENTRO METEOROLÓGICO MARITIMO DE VALPARAÍSO - PLAYA ANCHA RADIO C.B.V.  
TE.FAX : 56-32 2208914 / 2208965 meteovalp@directemar.cl ; cbvradio@directemar.cl

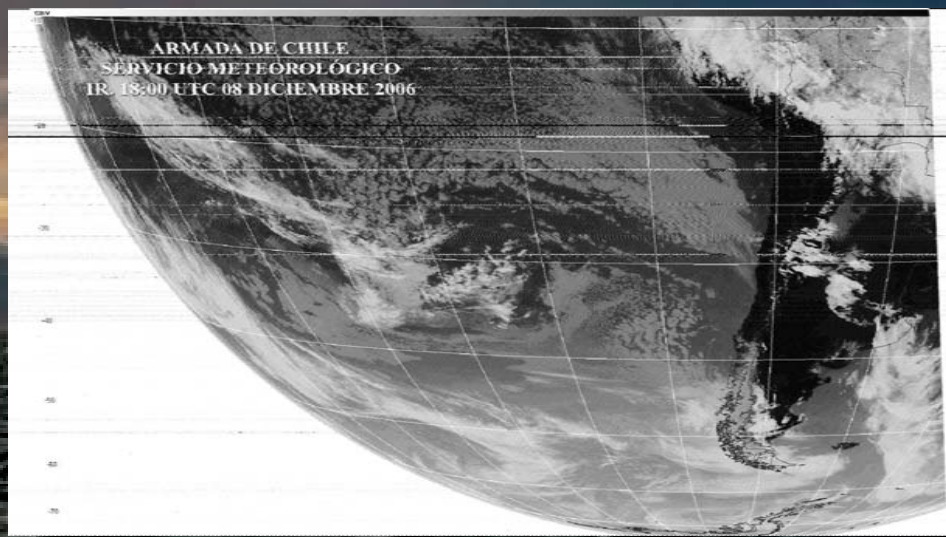
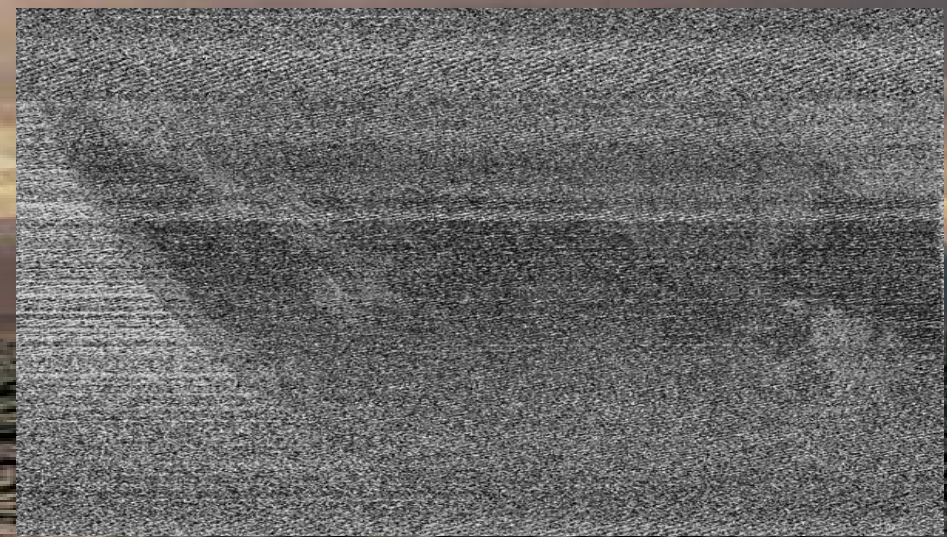
ARMADA DE CHILE  
SERVICIO METEOROLÓGICO  
CARTA DE SUPERFICIE  
FECHA 13 - DIC - 06 HORA 06 Z.



CARTA DE SUPERFICIE  
13 DICIEMBRE 2006  
06:00 UTC

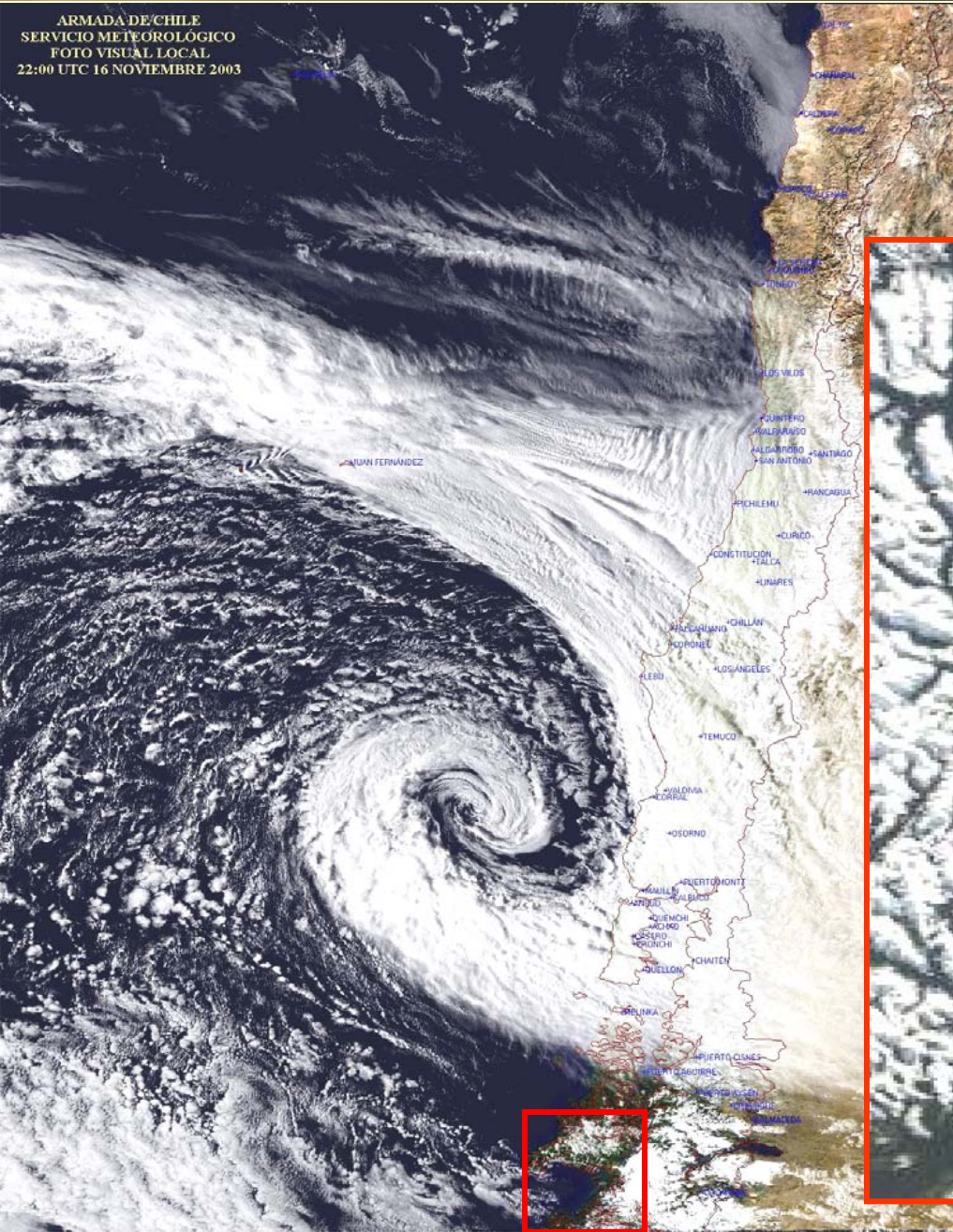
SE INVITA A LAS NAVES Y EMBARCACIONES A QUE INFORMEN SU POSICIÓN, DIRECCIÓN E  
INTENSIDAD DEL VIENTO, ALTURA DE LA OLA EN METROS Y PRESIÓN ATMOSFÉRICA, AL  
CENTRO METEOROLÓGICO MARITIMO DE VALPARAÍSO - PLAYA ANCHA RADIO C.B.V.  
TE.FAX : 56-32 2208914 / 2208965 meteovalp@directemar.cl ; cbvradio@directemar.cl

# DRAKE PASSAGE NAVIGATION AND ANTARCTIC CAMPAIGNS SUPPORT

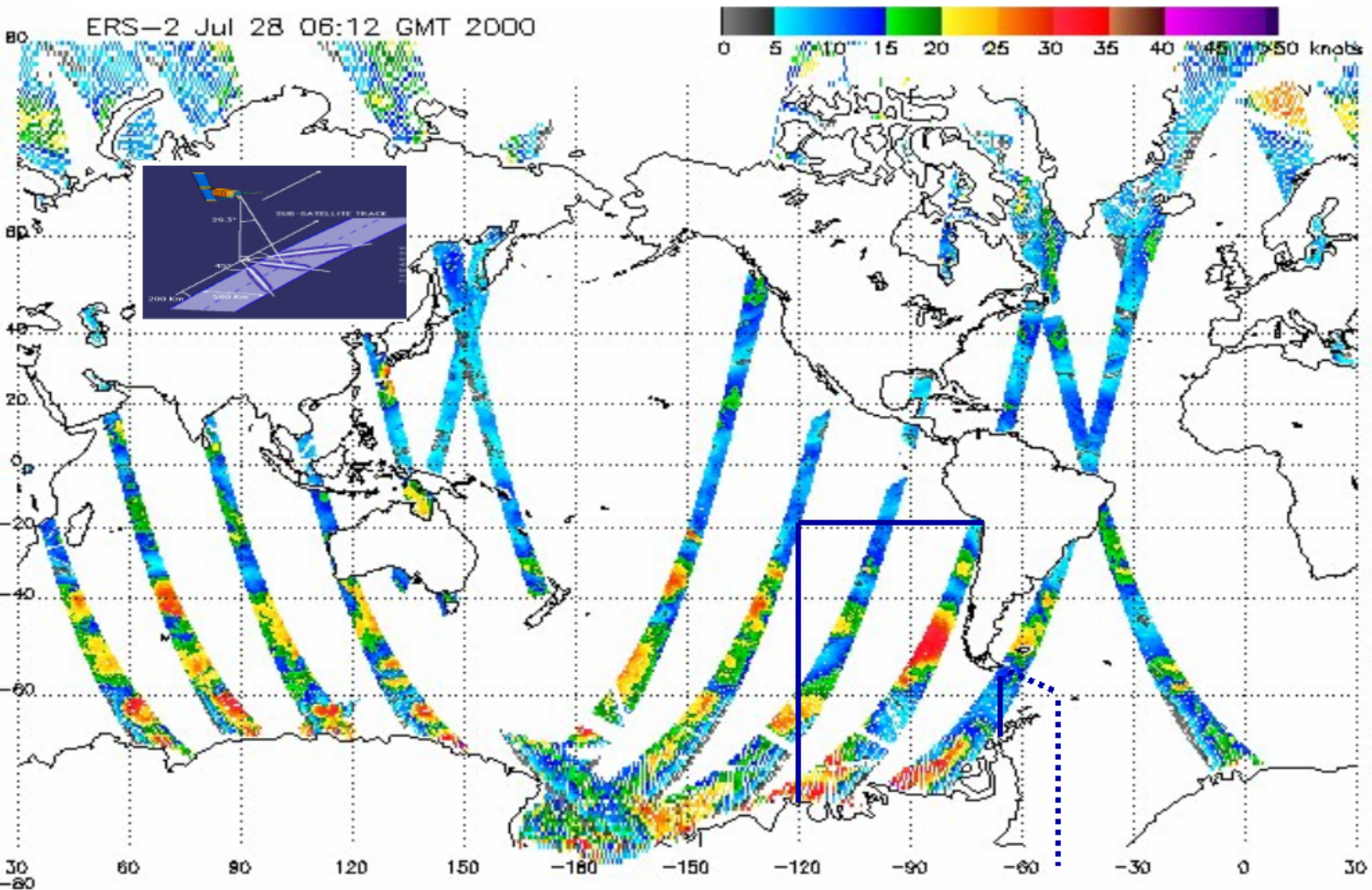


# HI.RES. IMAGES FOR INNER CHANNELS SAFE NAVIGATION

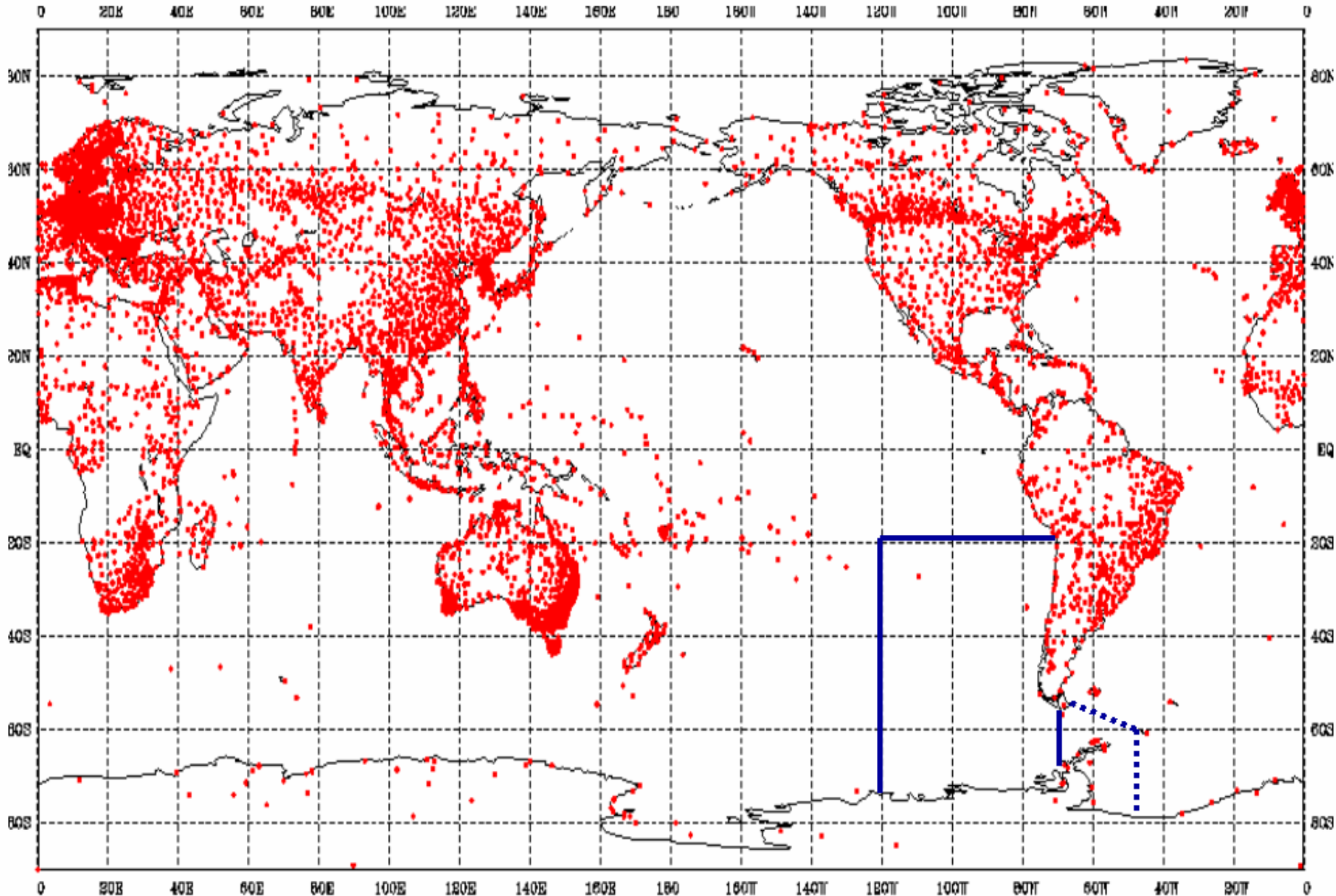
ARMADA DE CHILE  
SERVICIO METEOROLÓGICO  
FOTO VISUAL LOCAL  
22:00 UTC 16 NOVIEMBRE 2003



# ORBITAL SATELLITE COVERAGE FOR WIND MEASSURING ON WAVE STRESS AND HEIGHT

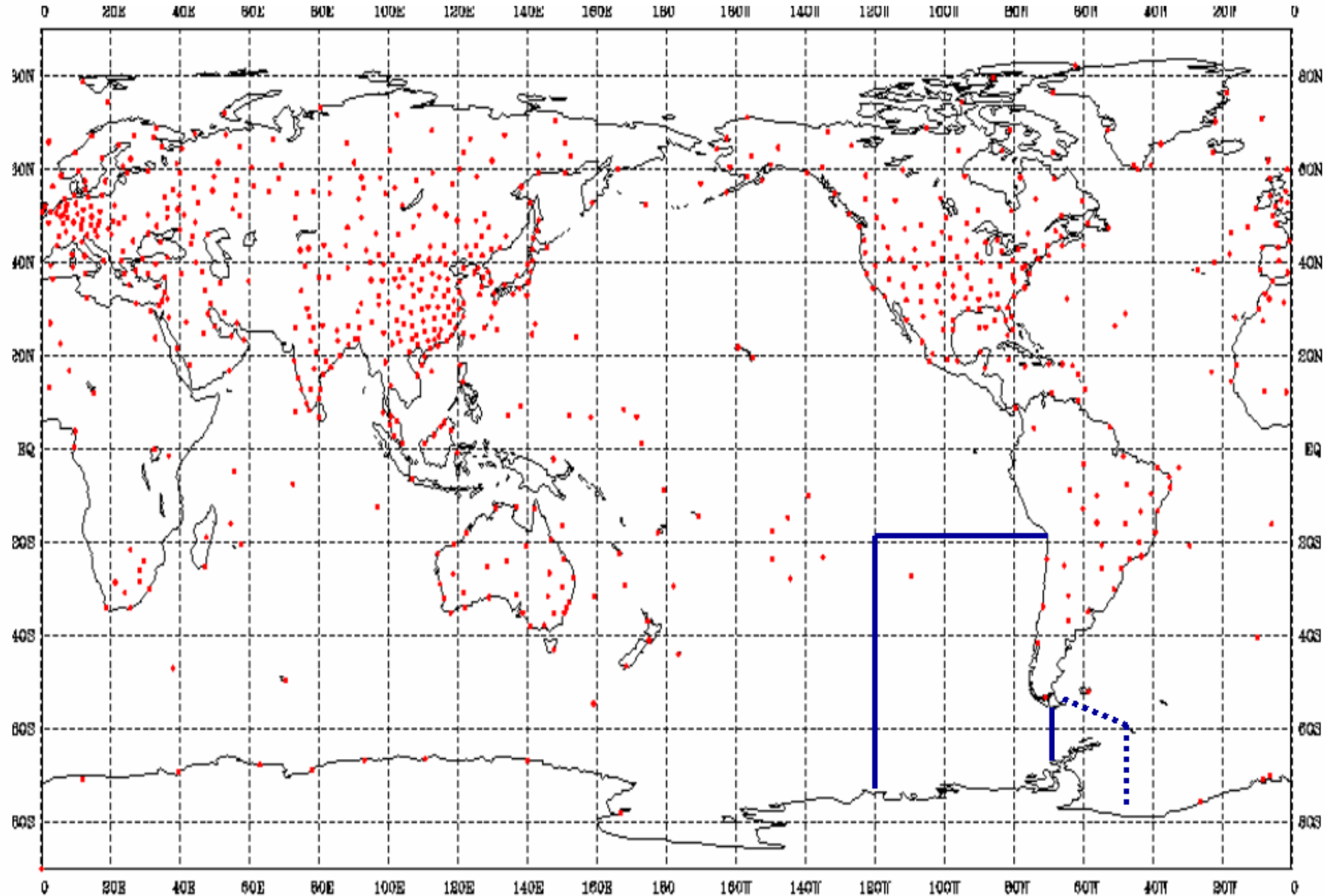


# WORLDWIDE WEATHER WATCHING FIXED OBSERVATIONS NETWORK OF SYNOPTIC STATIONS

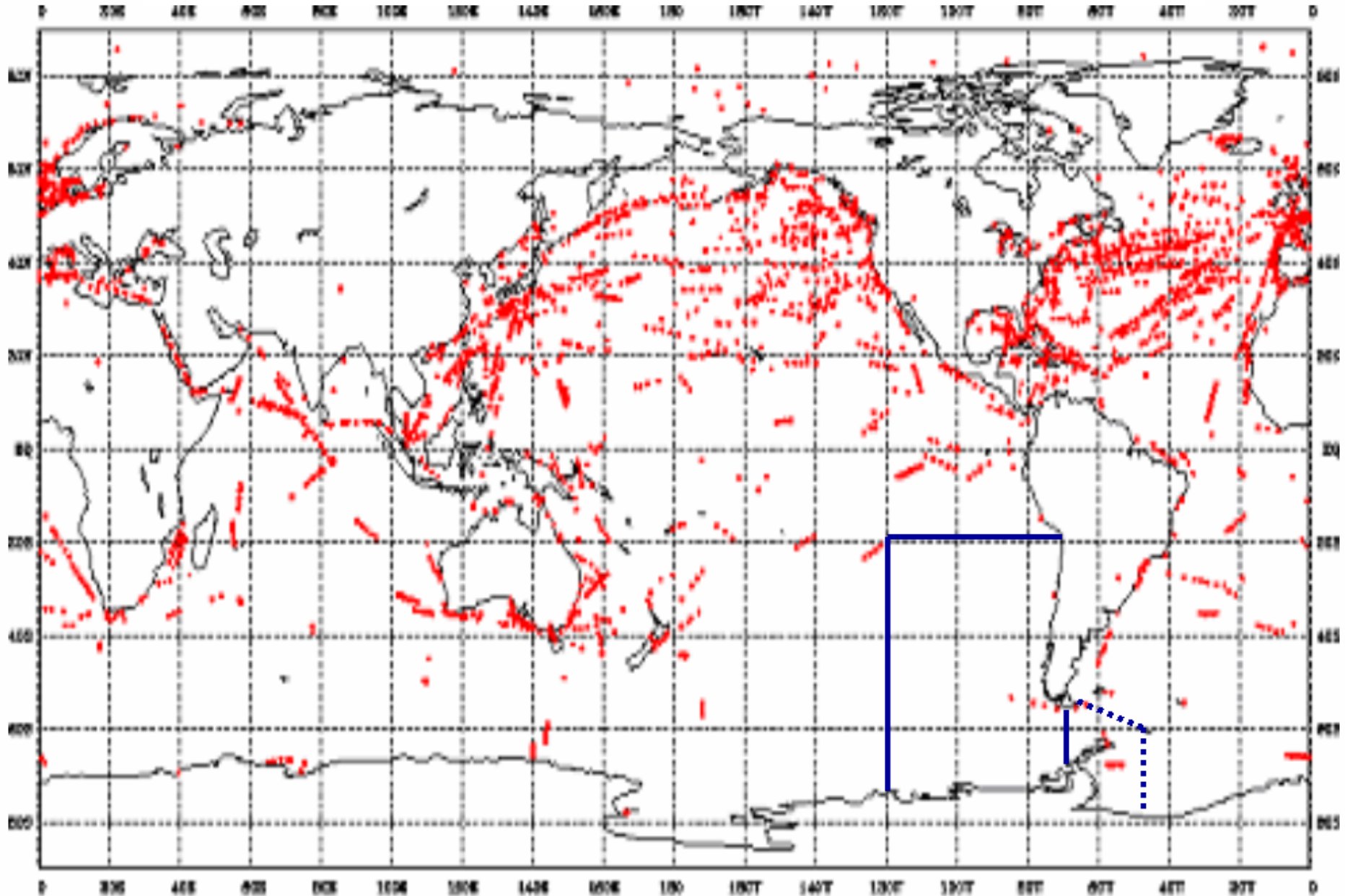


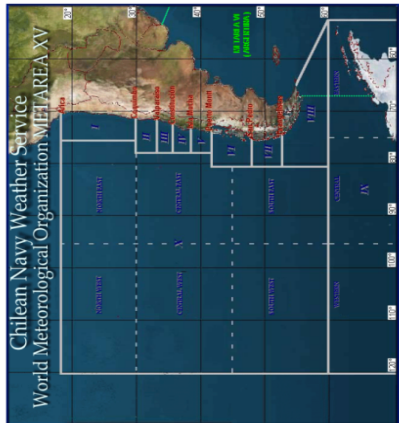


# WORLDWIDE UPPER ATMOSPHERE INFORMATION FROM SOUNDINGS



# WORLDWIDE WEATHER INFORMATION FROM SHIPS MOBILE NETWORK





**CHILEAN NAVY  
TALCAHUANO MARITIME AUTHORITY  
METEOROLOGICAL CENTER**

**RADIOFACSIMILE BROADCAST SCHEDULE (weather fax)  
FREQUENCIES : 4228.0 KHz - 8677.0 KHz - 17146.4 KHz (mode 576, 120 rpm)**

INFORMATION	SCHEDULES	WINTER TIME (-4)	SUMMER TIME (+3)
SURFACE CHART 06 UTC	11:15 UTC	07:15 LCL	08:15 LCL
SATELLITE IMAGE 09 UTC	11:30 UTC	07:30 LCL	08:30 LCL
SURFACE CHART 12 UTC	16:30 UTC	12:30 LCL	13:30 LCL
SATELLITE IMAGE 15 UTC	16:45 UTC	12:45 LCL	13:45 LCL
WAVE HEIGHT 12 UTC	19:15 UTC	15:15 LCL	16:15 LCL
SATELLITE IMAGE 18 UTC	19:30 UTC	15:30 LCL	16:30 LCL
SATELLITE CHART 18 UTC	22:00 UTC	18:00 LCL	19:00 LCL
SEA ICE LIMITS	22:15 UTC	18:15 LCL	19:15 LCL
WIND FORECAST 12 UTC	22:30 UTC	18:30 LCL	19:30 LCL
FORECAST CHART 12 UTC	23:10 UTC	19:10 LCL	20:10 LCL
SATELLITE IMAGE 21 UTC	23:25 UTC	19:25 LCL	20:25 LCL

**SERVICIO Meteorológico de la Armada de Chile**

Fonofax: 56-32-2208914 / 2208965 metowalp@directemar.cl; cbradio@directemar.cl; cbradio@directemar.cl

Hasta el 14 de mayo de 2008 10:00:00

Fundación | Edificios | Estado de Puerto | Pronósticos | Reportes satelitales | Información General

• Carta de Superficie Chile  
 • Carta de Superficie B.V.  
 • Carta Pronosticada de Chile  
 • Carta de Olas  
 • Imágenes Satelitales B.V.  
 • Imágenes Satelitales Chile  
 • Imágenes Satelitales Brasil

• Alertas  
 • Información de  
 • Comandancia de  
 • Comandancia de  
 • Comandancia de  
 • Comandancia de  
 • Comandancia de

• Pronósticos  
 • Estado de Puerto  
 • Reportes Satelitales  
 • Lit.

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SEE ON THE NET: [www.directemar.cl](http://www.directemar.cl)  
<http://weather.qmss.org/XV.html>

**CHILEAN NAVY WEATHER SERVICE FACSIMILE SYMBOLS**

**ARTICULAR FRONT:** high pressure center generated by the slow downward movement of an active anticyclone, with decrease in air density and winds fortification of all other clouds and the incursion of counter-clockwise winds.

**METEORIC DEPRESSION:** low pressure center generated by the upward movement of an active anticyclone, with fortification, with big amounts of clouds, gusty winds and clockwise circulation (cyclonic).

**THERMAL LOW:** generated by local heating, starting with low clouds, drizzle, fog and weak winds.

**ISOBARS:** points with the same atmospheric pressure. The wind speed can be estimated by using triangles or labels with the difference of pressure and distance. The direction is clockwise between the low pressure center and counter-clockwise getting out from high pressure centers.

**HIGH:** elongation from a high pressure center, as well as the conditions of subsidence and counter-clockwise wind circulation.

**TRONCHOS:** elongation from a low pressure center, as well as the conditions of convection and clockwise wind circulation.

**WAVES HEIGHT CHART**

Mean direction of sea waves directly generated by wind.

Estimated direction of swell propagation.

**FORECAST WIND CHART**

SWELL: indicates the direction and speed of wind blows. The circle represents 5 or 10 knots, while flag means 10 knots.

**ISOBARS:** lines of points with the same intensity of wind.

**COLD FRONT:** physical borderline between two different air masses, associated by conditions clouds, showers, hail, gusty winds and low visibility, over an area of 60 nautical miles. The triangles indicate the direction of the warm air mass advance.

**WARM FRONT:** physical borderline between two different air masses, associated by conditions clouds, showers, fog, gusty winds and low visibility, over an area of 300 nautical miles. The circles indicate the direction of the warm air mass advance.

**CLOUDS FRONT (OCCLUSION):** area where the characteristics of both fronts are mixed, due to the coexistence of the air masses.

**INVESTABILITY LINE:** high development of clouds formation, similar characteristics of cold front, but without changing different air masses.

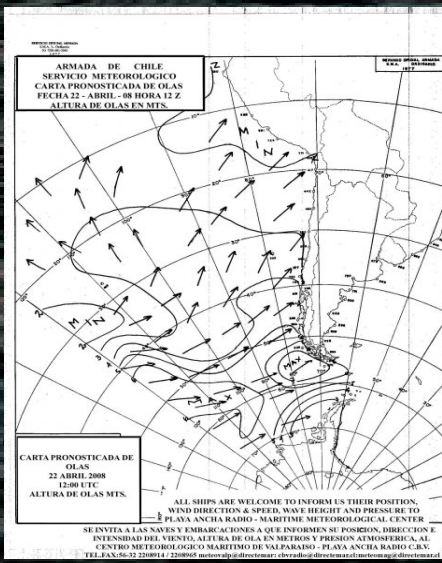
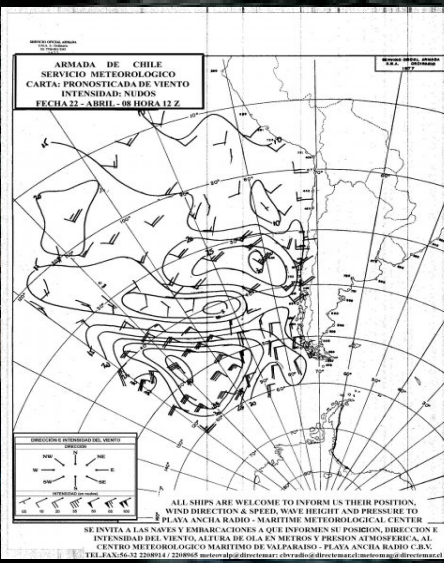
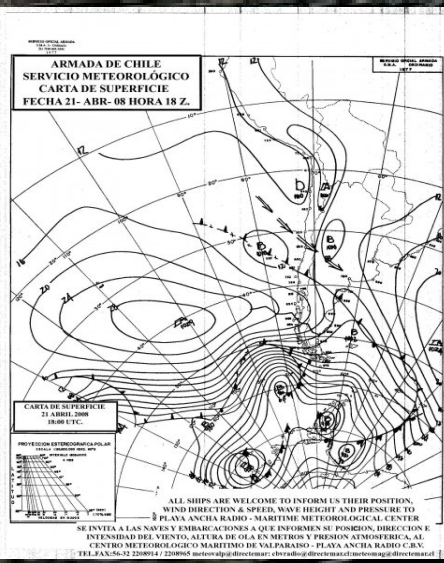
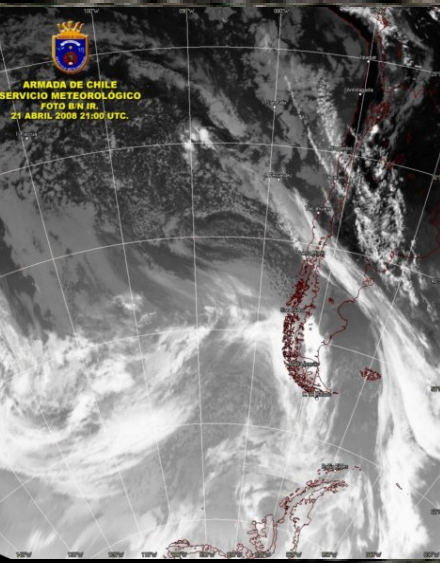
**WEAK FRONTAL SYSTEM:** shows their cloud pattern extended and pressure low frontal activity.

**HIGH FRONTAL SYSTEM:** presents a cloud pattern high, without frontal activity at surface.

ALL SHIPS ARE WELCOME TO INFORM US THEIR POSITION, WIND DIRECTION & SPEED, WAVE HEIGHT AND PRESSURE TO VALPARAISO PLAYA ANCHA RADIO C.B.V. - MARITIME METEOROLOGICAL CENTER  
 TEL.FAX:56-32-2208914 / 2208965 metowalp@directemar.cl; cbradio@directemar.cl; cbradio@directemar.cl; cbradio@directemar.cl; cbradio@directemar.cl; cbradio@directemar.cl

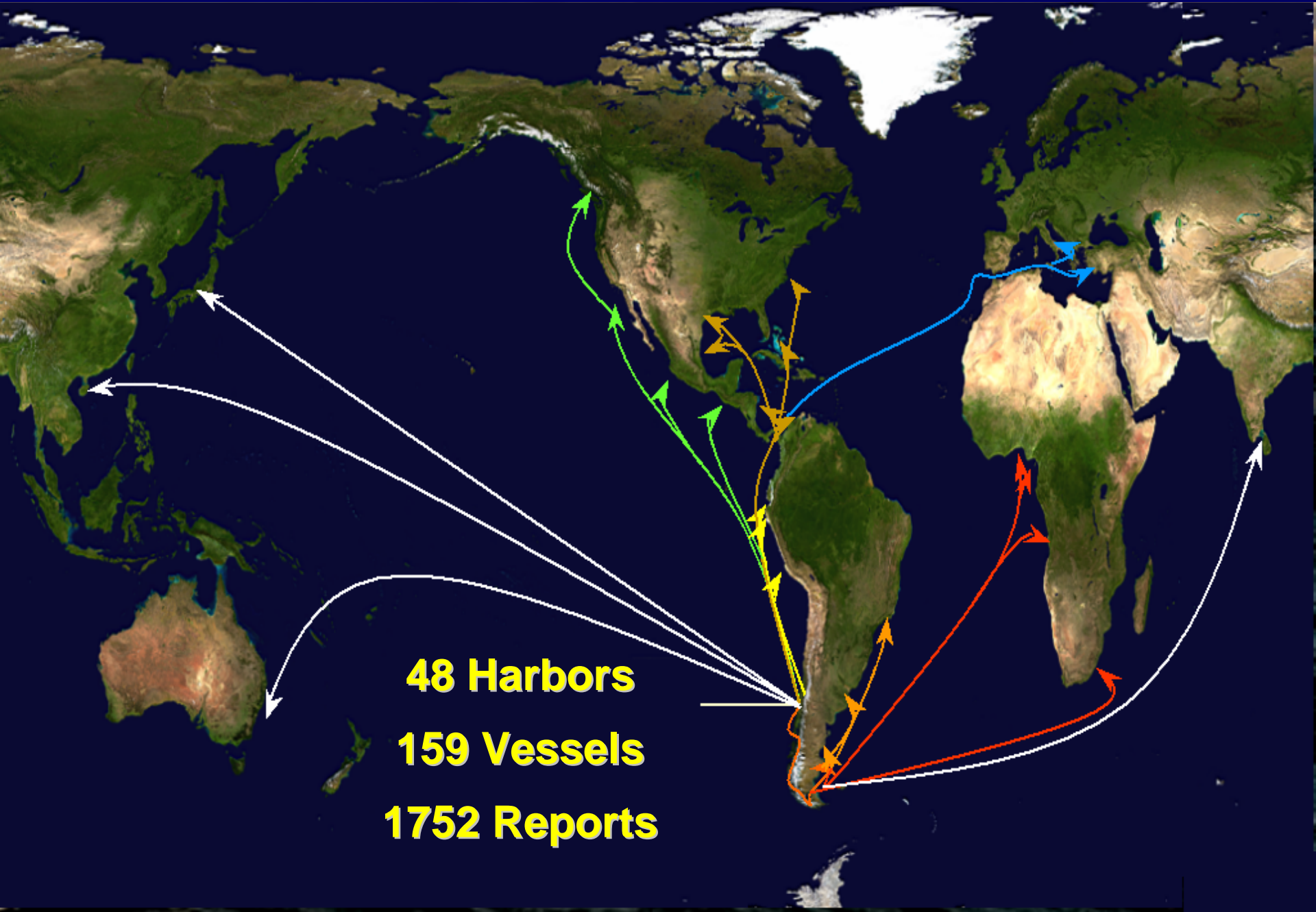
**COASTAL RADIO STATIONS WEATHER BULLETINS**

Atica Radio CB-2	Maritime Weather Forecast Zone I
Buque Radio CB-5	Maritime Weather Forecast Zone I & II
Antofagasta Zonal Radio CBA	Maritime Weather Forecast Zones I to III
Caldera Radio CB-5	Maritime Weather Forecast Zones I & II
Chañaral Radio CBA-23	Maritime Weather Forecast Zone I
Musaso Radio CBA-24	Maritime Weather Forecast Zones I & II
Columbo Radio CBA-4	Maritime Weather Forecast Zones I to VI & IX
Centro de Telecomunicaciones Maritimas de Valparaiso Playa Ancha Radio CBV	Present Weather for Juan Fernandez Area
Juan Fernandez Radio CBF	Present Weather for Easter Island Area
San Antonio Radio CBV-22	Maritime Weather Forecast Zone II
Talcahuano Zonal Radio CBT	Maritime Weather Forecast Zones III to V
Constitucion Radio CBT-1	Present Weather for Constitucion Area
Faro Isla Guineas Radio CBT-2	Present Weather for Guineas Island Area
Faro Isla Mocha Radio CBT-3	Present Weather for Mocha Island Area
Faro Cabo Corrientes Radio CBT-7	Present Weather for Puerto Montt Area, Light Corona, Guafu and Rapel
Puerto Montt Zonal Radio CBP	Maritime Weather Forecast Zones IV to VII
Faro Punta Corona Radio CBP-70	Present Weather for Western Chacao Channel Area, Puerto Montt and Guafu Island Light
Faro Isla Guafu Radio CBP-4	Present Weather for Guafu Island Area
Castro Radio CBP-2	Maritime Weather Forecast Zones VI & VII
Puerto Aysen Radio CBP-3	Present Weather for Chilo Island Area
Magallanes Zonal Radio CBM	Maritime Weather Forecast Zones VI to IX
Isla San Pedro Radio CBS	Special Bulletin for Magellan Strait Area, Nelson Strait - Puerto Natales - Fairway - Forward - Dungeness - Punta Arenas - Dungeness - Wollaston - Beagle Channel - Nassau - Cape Horn
Wollaston Radio CBN	Maritime Weather Forecast Zones V to VII
Baha Felix Radio CBX	Present Weather for San Pedro Island and Paraiso Gulf Area
Diego Ramirez Radio CBM-30	Present Weather for Drake Passage Area
Faro Islotes Evangelistas Radio CBM-3	Present Weather for Western Magellan Strait Area, Light Felix and Fawcett
Punta Delgada Capuerto Radio	Maritime Weather Forecast Zones VII & VIII
Faro Punta Dungeness Radio	Present Weather for Eastern Magellan Strait Area
Faro Cabo Rapel Radio	Present Weather for Cape Horn Light Area
Faro Islote Fairway Radio	Present Weather for Fairway, Felix and Evangelistas
Centro Meteorológico Presidente Frei	Weather Forecast for Drake Passage Area, Antarctica Road and Maritime Forecast for Bellinghousen Sea
Baha Fildes Capuerto Radio	Antarctic Maritime Weather Forecast Zone IX



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PLAYA ANCHA RADIO - MARITIME METEOROLOGICAL CENTER  
SE INVITA A LAS NAVES Y EMBARCACIONES A QUE INFORMEN SU POSICION, DIRECCION E  
INTENSIDAD DEL VIENTO, ALTURA DE OLA EN METROS Y PRESION ATMOSFERICA, AL  
CENTRO METEOROLOGICO MARITIMO DE VALPARAISO - PLAYA ANCHA RADIO C.B.V.  
TEL.FAX:56-32-2208914 / 2208965 metowalp@directemar.cl; cbradio@directemar.cl; cbradio@directemar.cl**

# INTERNATIONAL ROUTES OF MARITIME TRAFFIC



**48 Harbors**  
**159 Vessels**  
**1752 Reports**

# "METEO" DATA MAIN CONTRIBUTORS



LIDER

x 263



LIBAS

x 172



14-ENE  
2010

VESTERVEG

x 125



PILOTO PARDO

x 100



GUANAYE II

x 94



TUPUNGATO

x 59



MV TITAN

x 87



LONCO

x 92



DAIO CREACION

x 59



VIDAL GORMAZ

x 43



BMS MERINO

x 45



ARAUCANO

x 32



LM CHIPANA

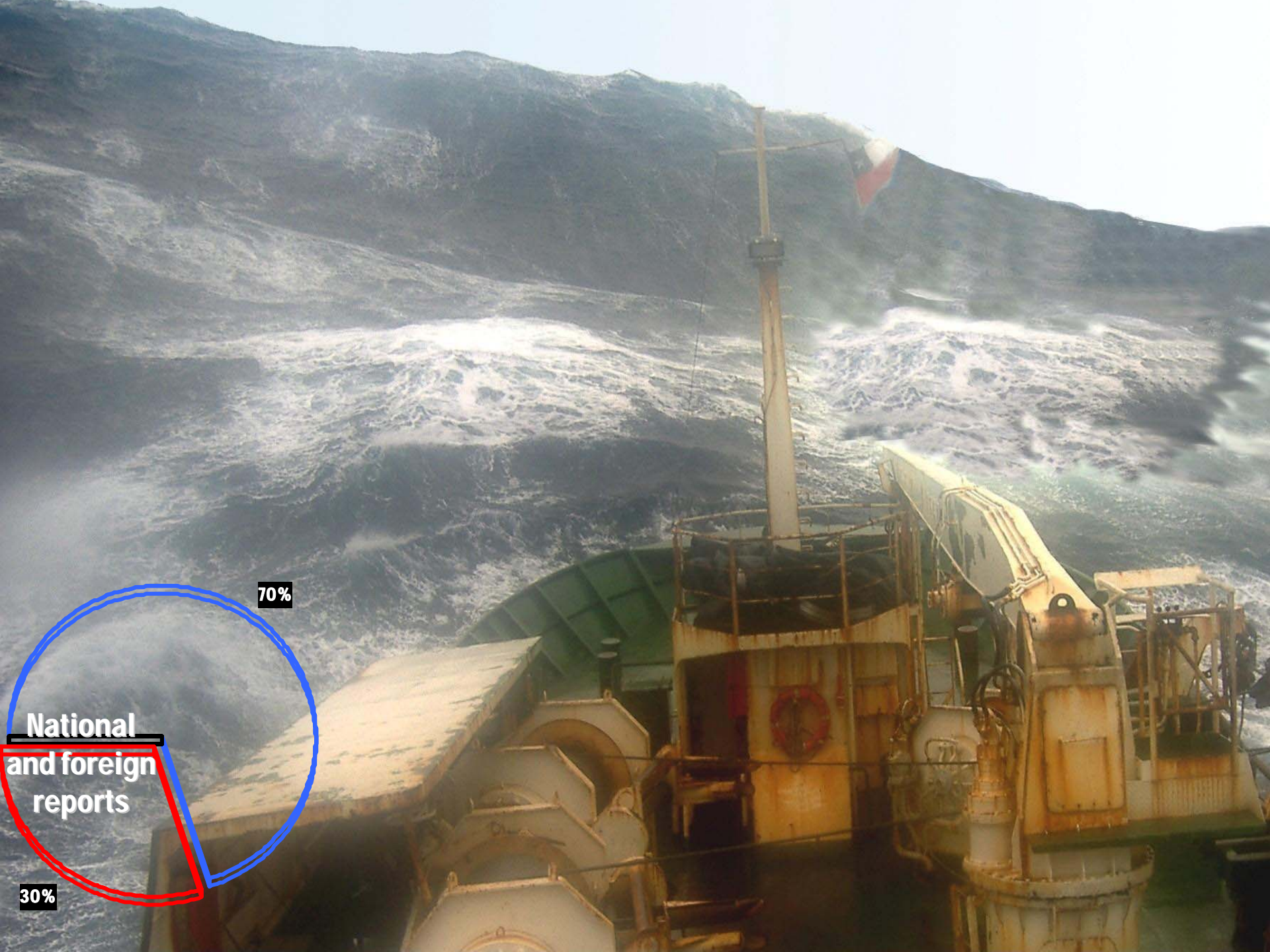
x 33



HS ELEKTRA

x 42





70%

National  
and foreign  
reports

30%



# SAILS SOUTH AMERICA 2010

BICENTENNIAL REGATTA AND GREAT SAILING SHIPS MEETING



# INTERNATIONAL FISHING VESSELS AND LOGISTIC FLEET OPERATIONS AREA



26/08/2009 11:16 [ 44° 1' 43 S] [ 71° 17' 18 W] Actualic. Automatica: 5 mil Zoom: 3155 MN



**SPAIN: ALL YEAR ON SWORDFISH**

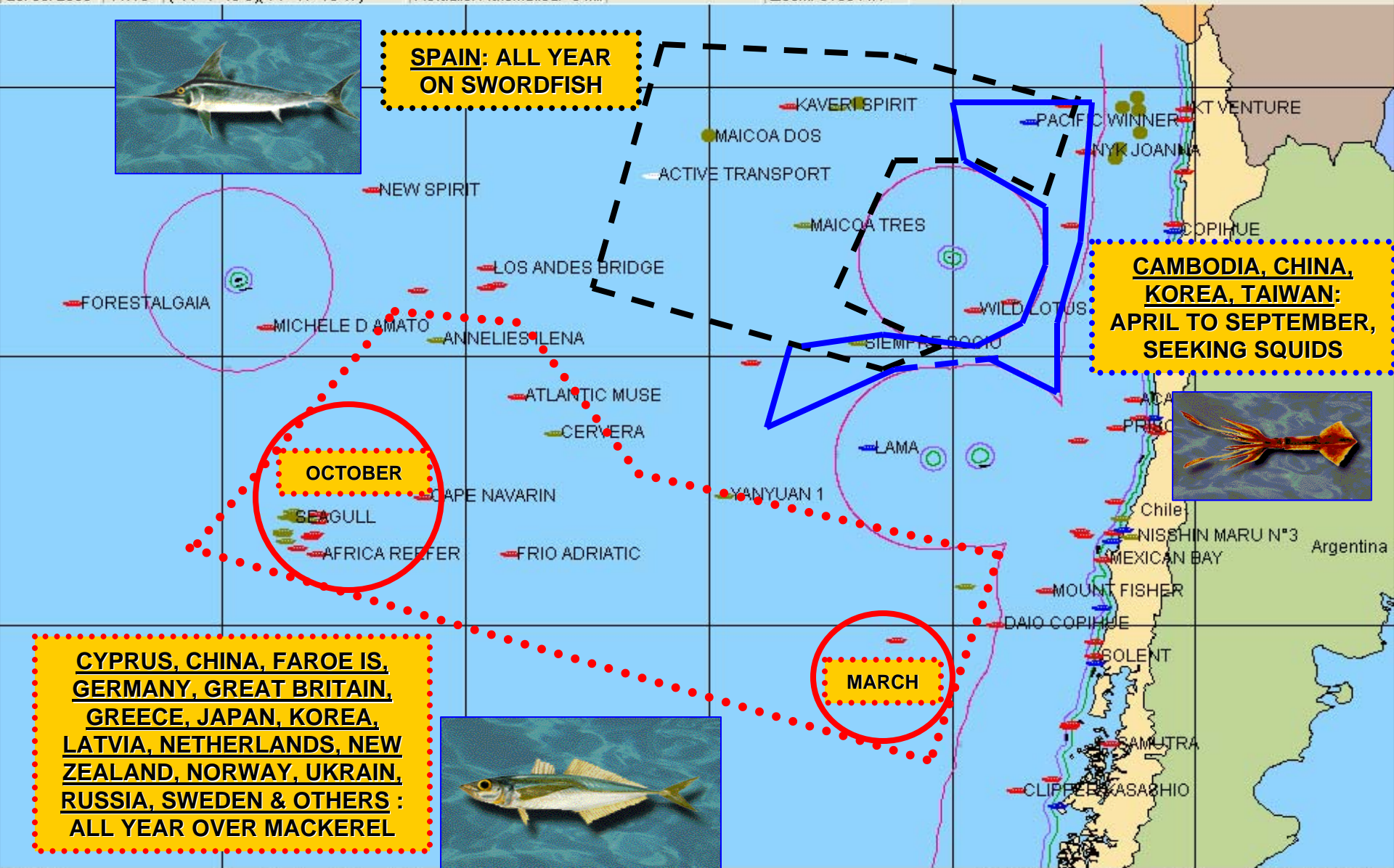
**CAMBODIA, CHINA, KOREA, TAIWAN: APRIL TO SEPTEMBER, SEEKING SQUIDS**



**OCTOBER**

**MARCH**

**CYPRUS, CHINA, FAROE IS, GERMANY, GREAT BRITAIN, GREECE, JAPAN, KOREA, LATVIA, NETHERLANDS, NEW ZEALAND, NORWAY, UKRAIN, RUSSIA, SWEDEN & OTHERS : ALL YEAR OVER MACKEREL**







**ASC SOUTH AMERICA S.A. (ARGENTINA)**

**CHINA NATIONAL FISHERIES GROUP CO.**

**P/F THOR OFFSHORE SERVICES (FAROE ISLANDS)**

**NORTH ATLANTIC HOLDINGS LTD (GREAT BRITAIN)**

**URGORA S. DE R.L. (HONDURAS)**

**AMASUS SHIPPING B.V. (LIBERIA & VANUATU)**

**BERGEN INDUSTRIES & FISHING CORP. (LIBERIA & VANUATU)**

**PARLEVLIT & VAN DER PLAS HARINGHANDEL N.V.**

**W. VAN DER ZWAN ZONEN VISSERIJ MAATSCHAPPIJ B.V.  
(NETHERLANDS)**

**COOK STRAIT SEAFOODS LTD (NEW ZEALAND)**

**BALTIC ATLANT SHIPPING LTD – FREIREMAR – GEMMA  
MARIA S.L. – GLAXWELL FINANCIAL LTD – GRUPO REGAL  
HERMANOS GUDE GONZALEZ – MAICOA S.A. – NOVAPESCA  
TRADING S.L. - PESQUERA AUGADOCE S.L. – PESQUERA  
CHAMO – PESQUERIAS ECCE HOMO S.L. – PESQUERA ROSU  
TERCERO – TUSAPESCA (SPAIN)**

**DALMOREPRODUKT JOINT STOCK HOLDING CO. (RUSSIA)**

**LIPOLAR MANAGEMENT LTD. (CYPRUS)**

**THE PENINSULAR AND ORIENTAL STEAM  
NAVIGATION CO. (GREAT BRITAIN)**

**LASKARIDIS SHIPPING CO. LTD. (GREECE)**

**ROSWELL NAVIGATION CORP. (GREECE)**

**EASTWIND LTD. (JAPAN)**

**ROSWELL NAVIGATION CORP. (NETHERLANDS)**

**SEATRADE GRONINGEN B.V. (NETHERLANDS)**

**FJORD SHIPPING A.S. (NORWAY)**

**REFTRANSFLOT JOINT STOCK CO. (RUSSIA)**

**VOSTOKTANKER J. (RUSSIA)**

**AGENCIA MARÍTIMA IBERNOR S.L. (SPAIN)**

**HOLY HOUSE SHIPPING AKTIEBOLAG (SWEDEN)**

**JOINT STOCK CO. YUGREFTRANSFLOT. (UKRAIN)**

**EASTWIND MARITIME INC. (UNITED STATES)**



*ANNALIES ILENA*



*COSTA AZUL UNO*



*DONG SAN HO*



*FRANZISKA*



*FU XING HAI*



*FREY*



*FRIGG*



*GLACIAL*



*HELEN MARY*



*KAI LI*



*KAI-XIN*



*KAI SHUN*



*KAY FU HAO*



*KWANG JAOH*



*LIAN XING HAI*



*MAARTJE THEADORA*



*MAICOA*



*MAICOA DOS*



*MAICOA TRES*



*MARGIRIS*



*POSEIDON*



*SIEMPRE SOCIO*



*THOR*



*URGORA*



*VIKTORIYA*



*XIN XING HAI*



*YANYUAN 1*



**B/T SEA FROST**



**B/T SCOTIA WIND**



**FRIO ATLANTIC 1**



**FRIO NIKOLAYEV**



**SARONIC BAY**



**SAN ANTONIO**



**SAN PAULO**



**SARONIC PRIDE**



**SILVER CAPE**



**PUSAN REEFER**



**BALTIJAS CELS**



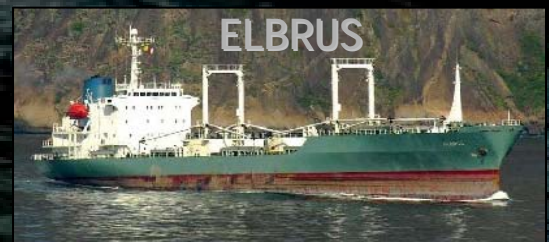
**COLD WIND**



**FUJI REEFER**



**ELBRUS**





**CHILEAN NAVY WEATHER SERVICE**  
**LCDR. ALEJANDRO DE LA MAZA**

Armada de Chile  
**DIRECTEMAR**



**IV INTERNATIONAL PORT  
METEOROLOGICAL WORKSHOP,  
ORLANDO FLORIDA 8-10 DEC.2010  
HOSTED BY W.M.O. & N.O.A.A. - N.D.B.C.**