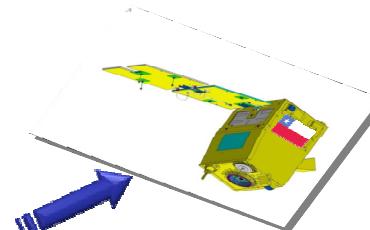


(COPUOS)

Chilean Space Agency

(Under-Secretariat of Economy of Chile)

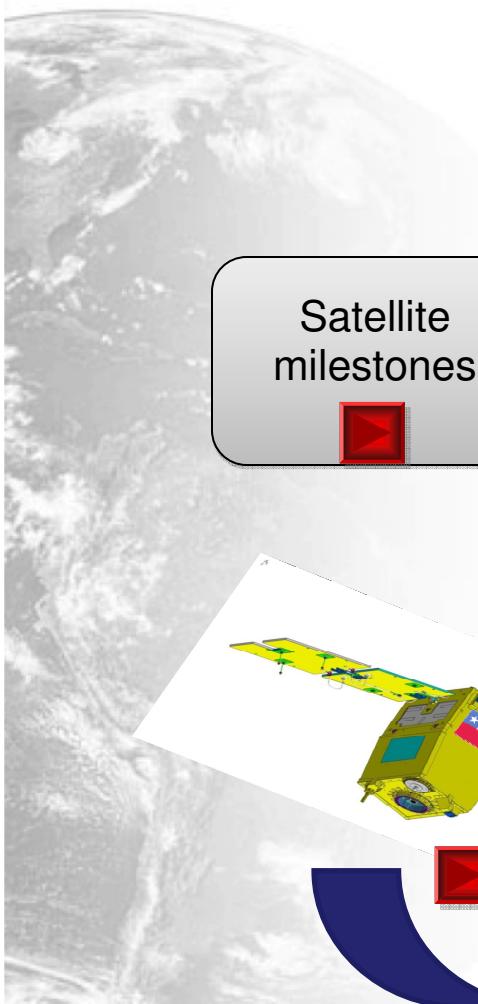
Space in Chile: Past, Present and Future



Juan Fernando Acuña Arenas
Executive Secretary

Vienna, June 2010

Agenda



Presidential Mandate

DS 0338 (MINDEF)

Modif. DS 0144 (MINECON)



Satellite
milestones



Global
Framework



Applications



GTMIG



SATCOM



International meeting
in Chile



Conclusions



Creation:

Supreme Decree 0338, (July 21 of 2001)

Dependency:

Defense Ministry, Undersecretary of the
Aviation

Modification:

Supreme Decree 144, December 29 of 2008

Dependency:

Economy Ministry, Undersecretary of Economy

Presidential Mandate

To be advisor to the Presidency, in order to **Identify,**
Formulate y Execute the following actions:

- ✓ Policies
- ✓ Plans
- ✓ Programs

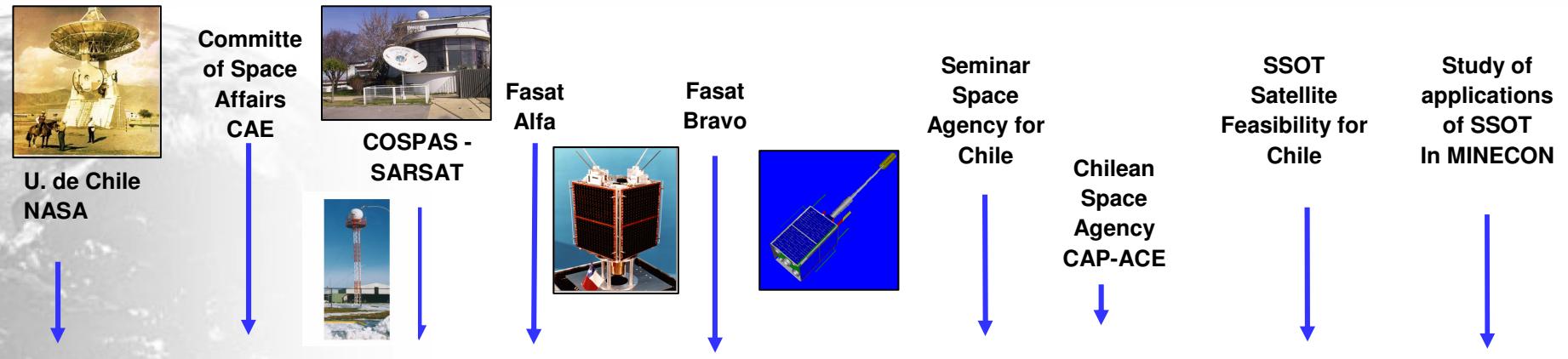
Actions and
Control

Other activities
relative to space
matters

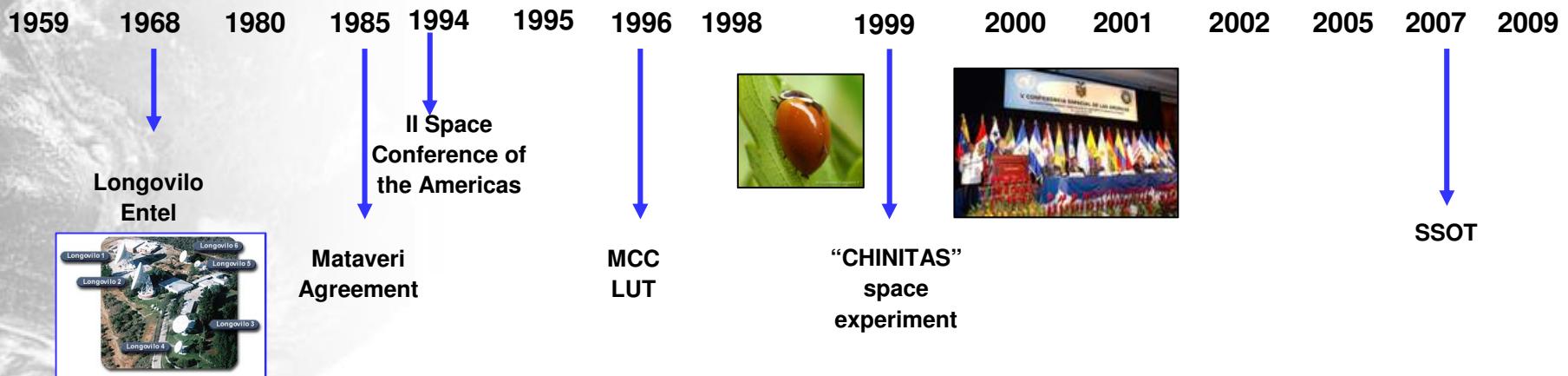
Coordination among the public organizations
with competences associates to space
matters.



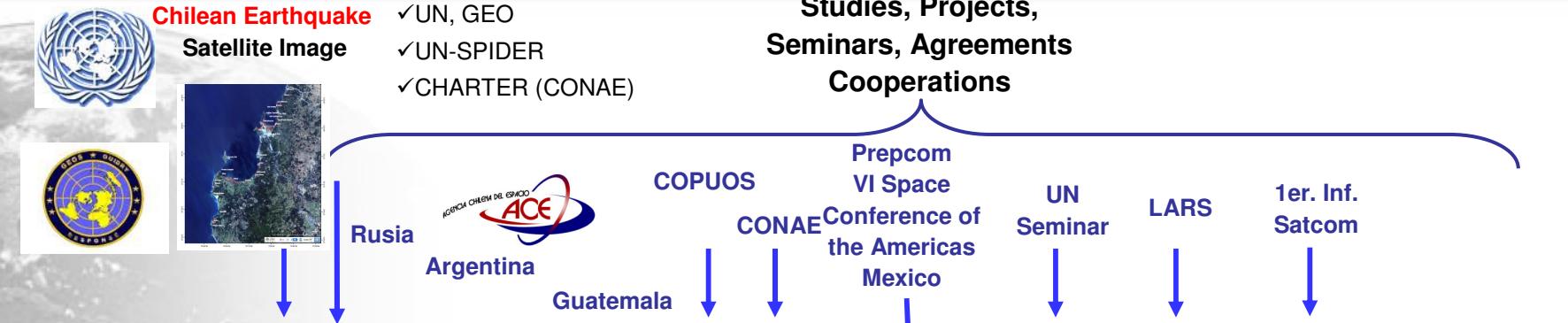
Space Activities in Chile Past



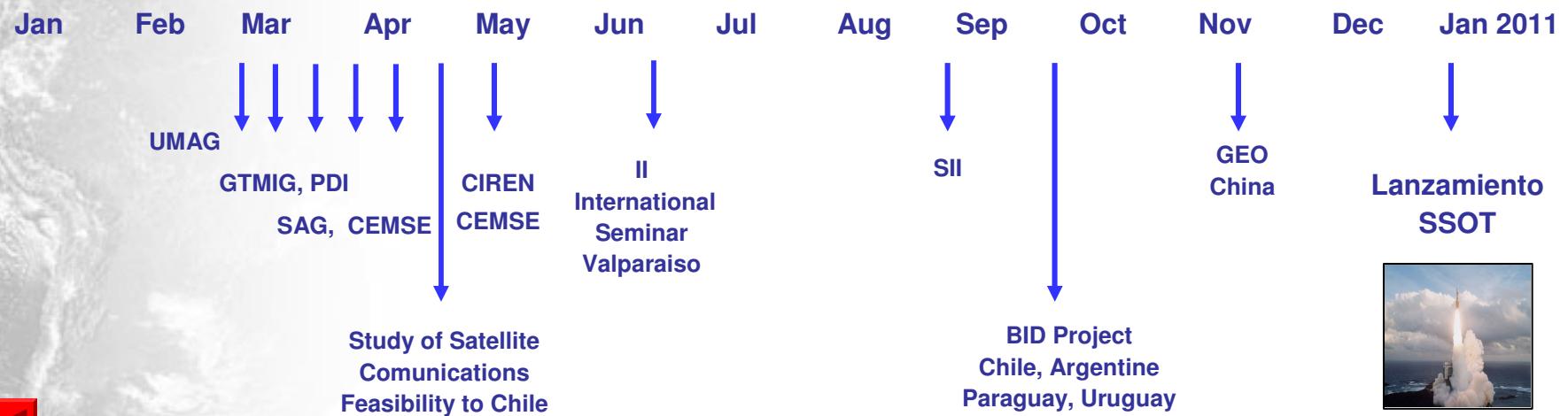
Satellite milestones from 1959 - 2009



Space Activities in Chile Present and Future



Satellite milestones from 2010 onwards



- ✓ **Promotion**
- ✓ **Standardization**
- ✓ **Coordination**

Of

The space activities with the government organizations and the private companies.

in order to:

- ✓ *Reach the information*
- ✓ *Utilize and use of the Science and Space Technology.*



Global Framework Chilean Space Agency

Technical / Scientific Activities

Earth Observation
(Remote Sensing)



Natural Disasters and
Environment

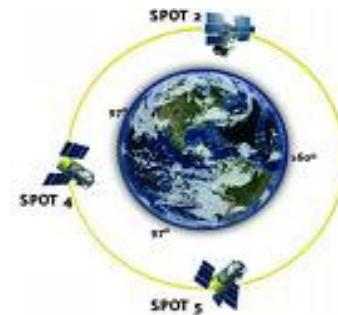
Satellite Communications

Deep Space Observation

Engineering and
Space Technology



Research, Development
and Innovation (R+D+i)



Support Research on
Economical Applications



Space Public Policy

International and Domestic Relationships

Citizenships connectivity

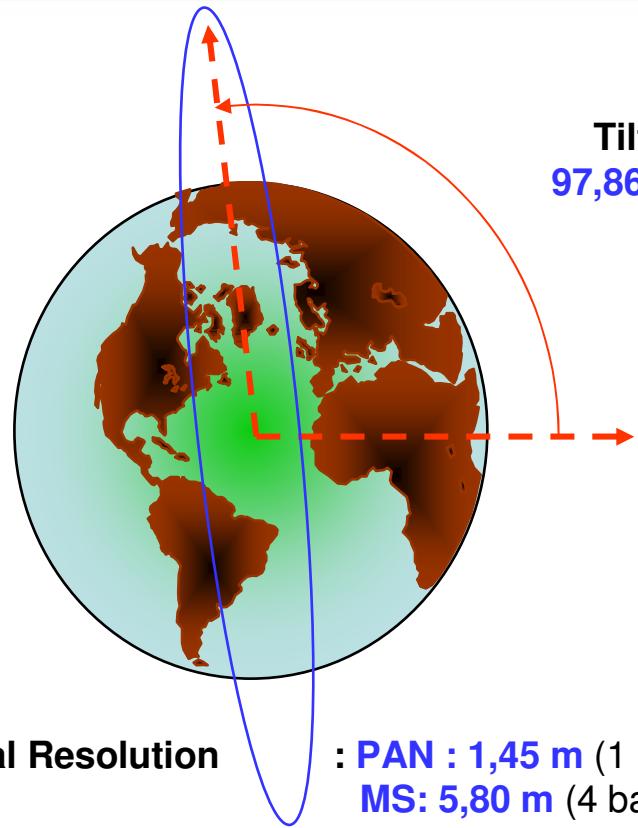


International Relationships



Technical Characteristics of SSOT

Circular orbit : LEO
Orbit Height : 620 km (Equator)
Picture size : 10,15 x 10,15 km
Orbital speed : 7.54 km/sec
Exacts revisit : 37 days
Satellite rotation 30° revisit : 5 days
Satellite rotation 10° revisit : 21 days
Average visibility with the ground station: **21.4 min**



Spatial Resolution : PAN : 1,45 m (1 band, B/W)
MS: 5,80 m (4 bands, colours)
Spectral Resolution : 450 – 890 nm
Blue: 450 – 520 nm
Green: 530 – 590 nm
Red: 625 – 695 nm
Near-infrared: 760 – 890 nm



Main Applications supported by ACE

Natural Disasters



Atmospheric Sciences



Mining



Glaciology



Foods



Energy



Geology



Forestry



Environment



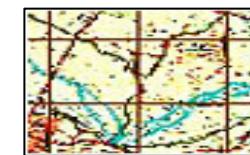
Territorial Planning



Marine



Cartography



Hydrology



Aquaculture



Main Current Projects

Multisectoral Working Group for GeoSpatial Information (GTMIG) Governmental Group for Damage Assessment and Reconstruction Plan after the Disaster of February 2010



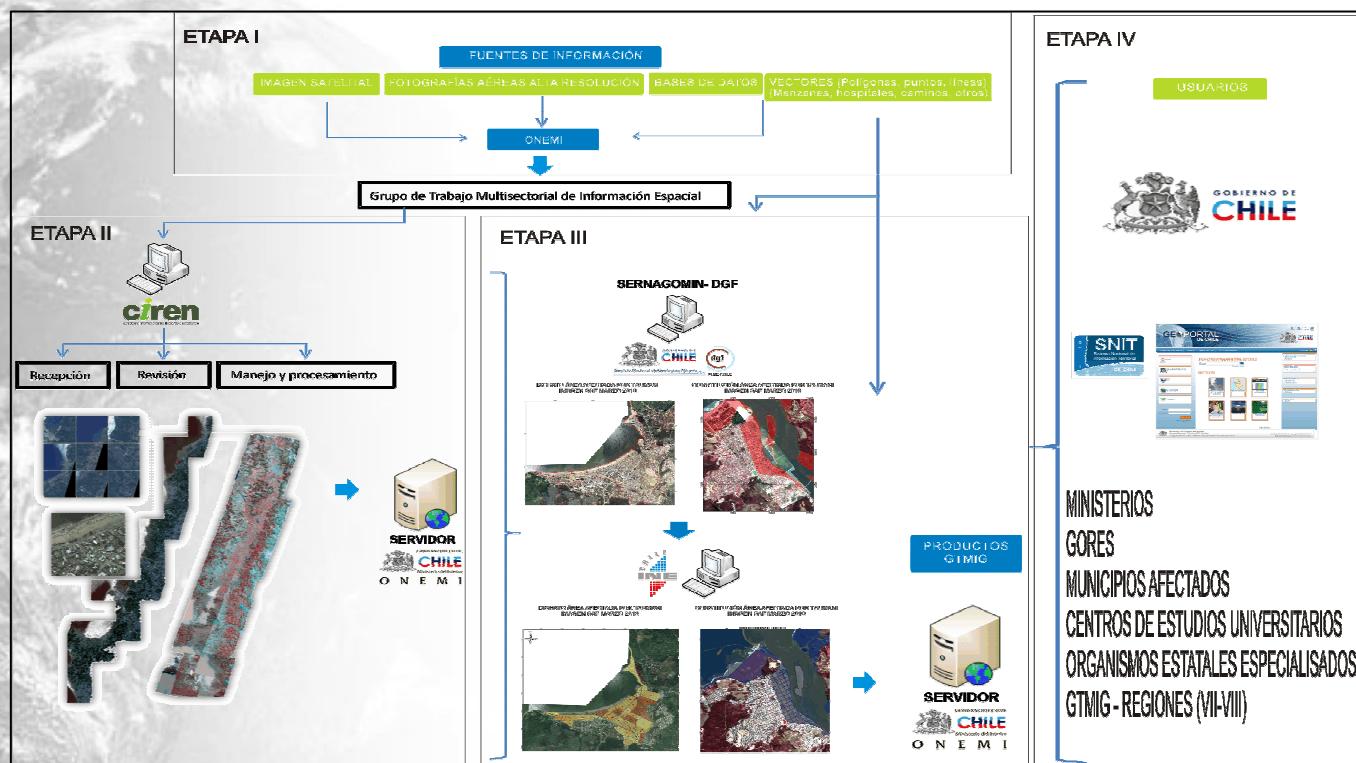
Damages caused by the Earthquake and Tsunami at 27th February 2010 Chile



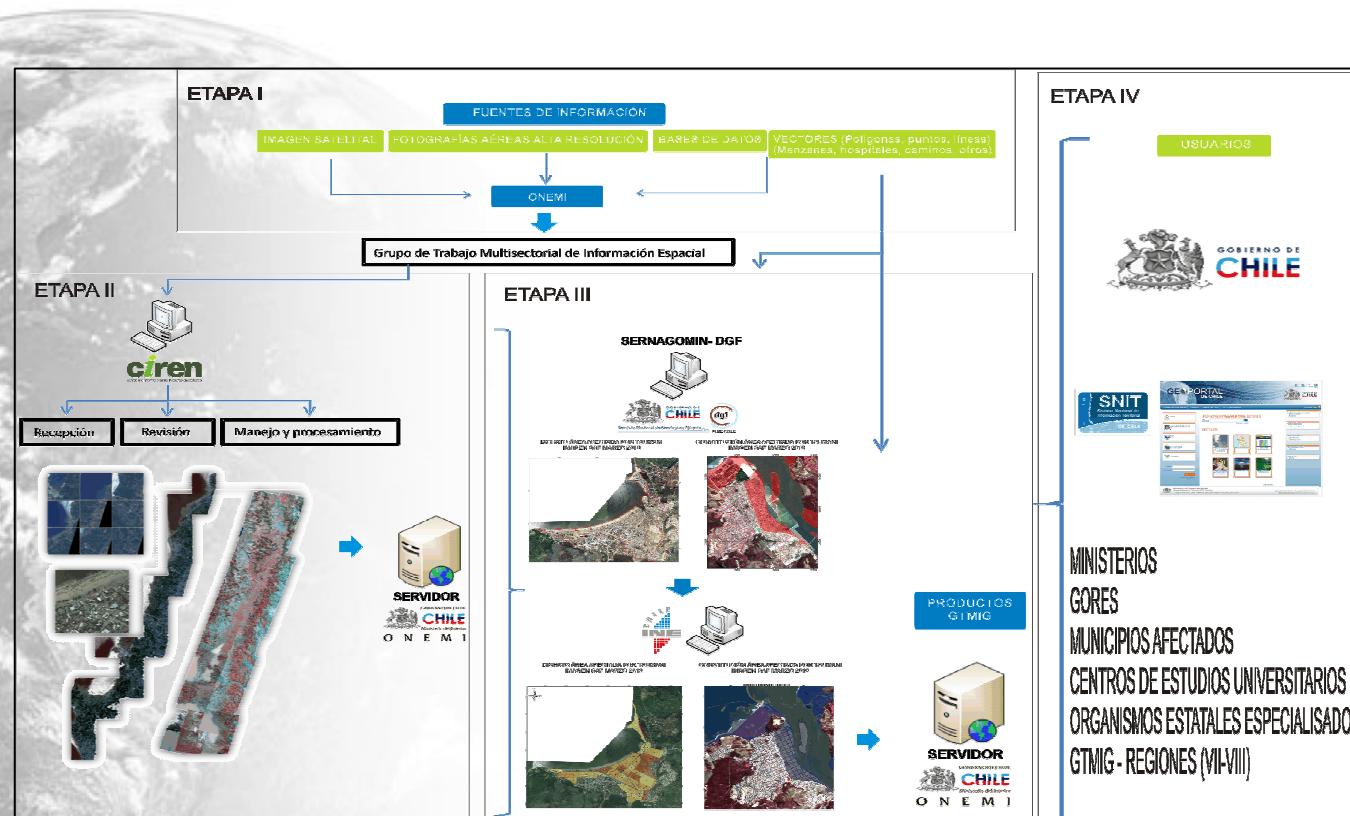


GOBIERNO DE
CHILE

Work Cycle GTMIG



E1: Activate, through ONEMI (National Emergency Office) and Chilean Space Agency (ACE) of the International CHARTER, obtaining the access to the corresponding servers to create a database of satellite images needed for the work of this special group GTMIG

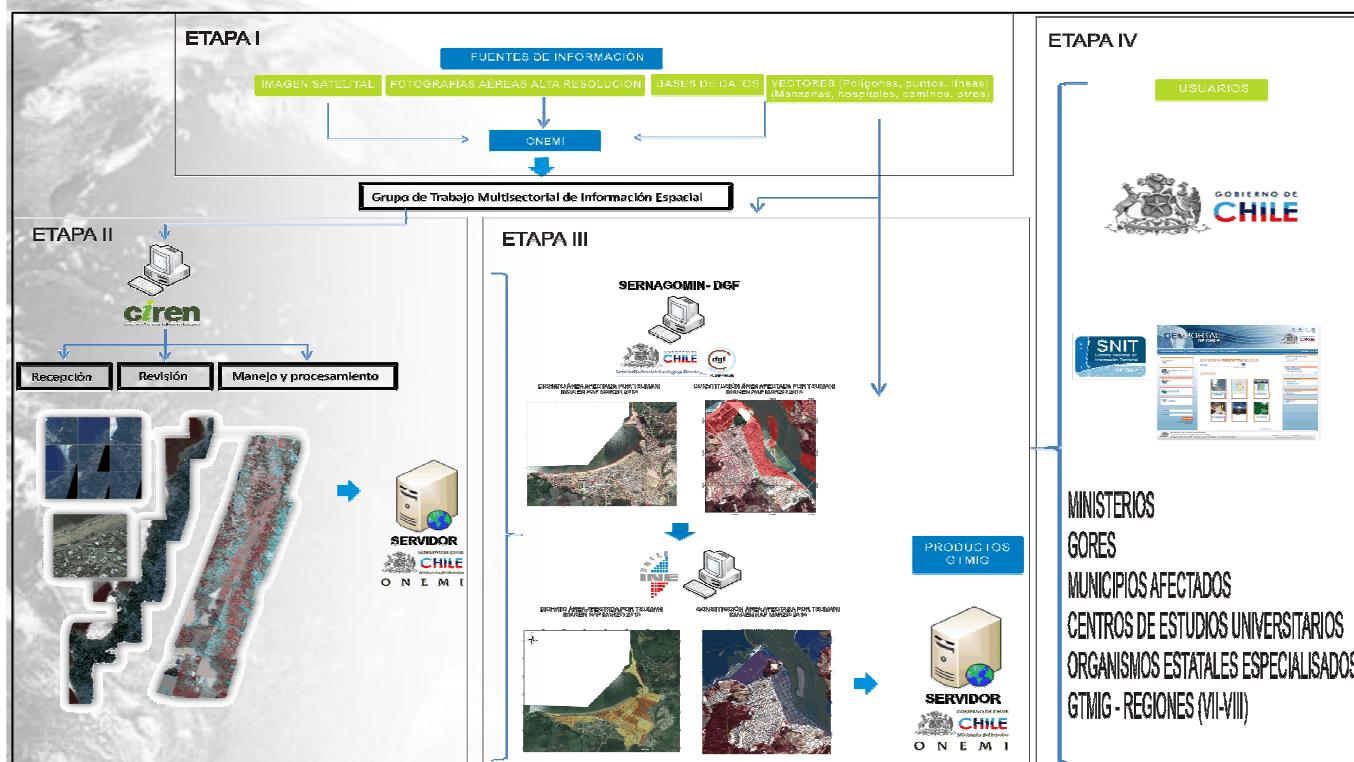


E2: This activity is divided in 3 parts:

- Reception: Access to the servers with satellite images coming from the Charter and its storing in national servers for GTMIG.
- Revision: Process of review, classification and filtering.
- The images downloaded to the servers.
- Processing: Final Preparation (geo referencing) and preparation of mosaics to cope the areas of interest (regional/local).

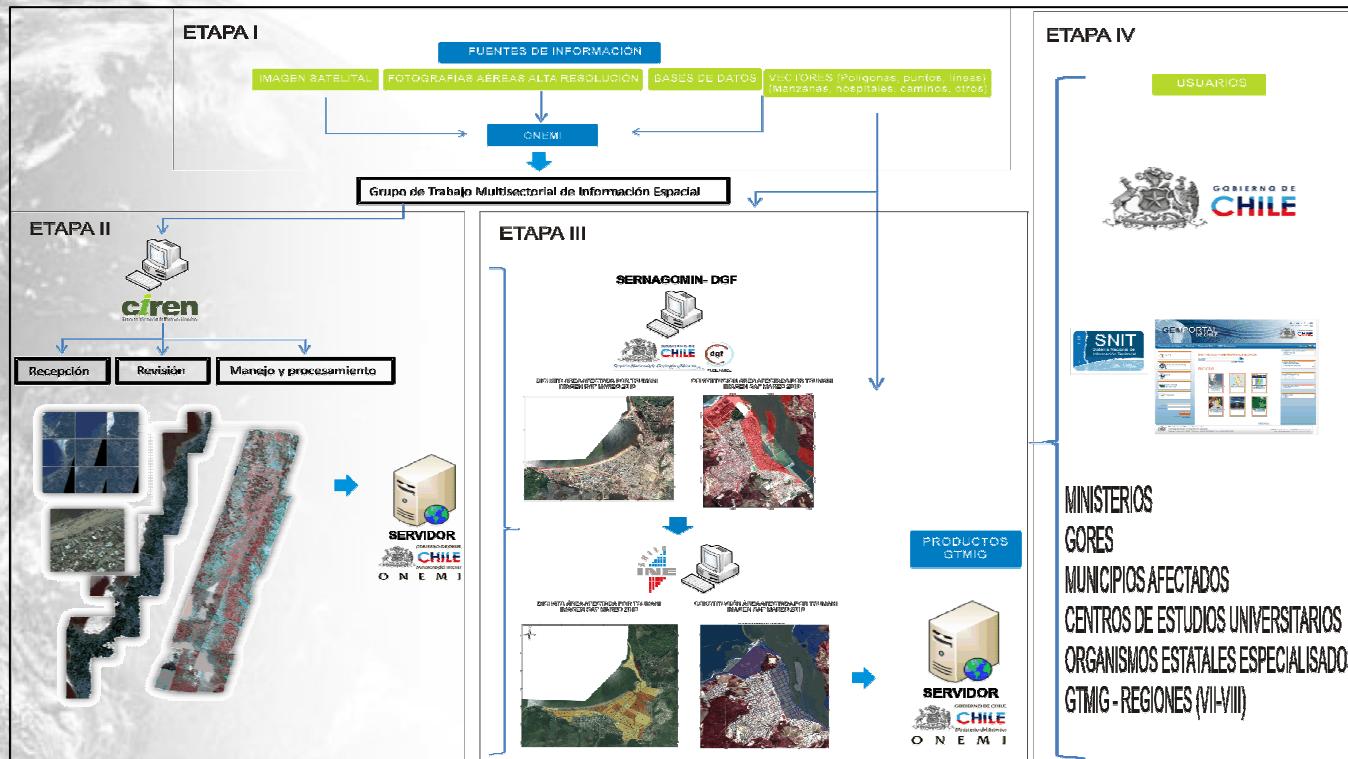


Work Cycle GTMIG



E3: Elaboration of the areas of flooding that affected these surfaces by mean of the interpretation of the satellite images available immediately after the seismic activity. After the delimitation of the flooding areas it carry out an areas overlapping among the flooded surface by the tsunami and the cartography of the population and houses available in the INE. This process allows to establish in a theoretical and technical way an estimation of the population and housing affected by the tsunami. Thus it can be established the assessment and planning actions needed.

Work Cycle GTMIG

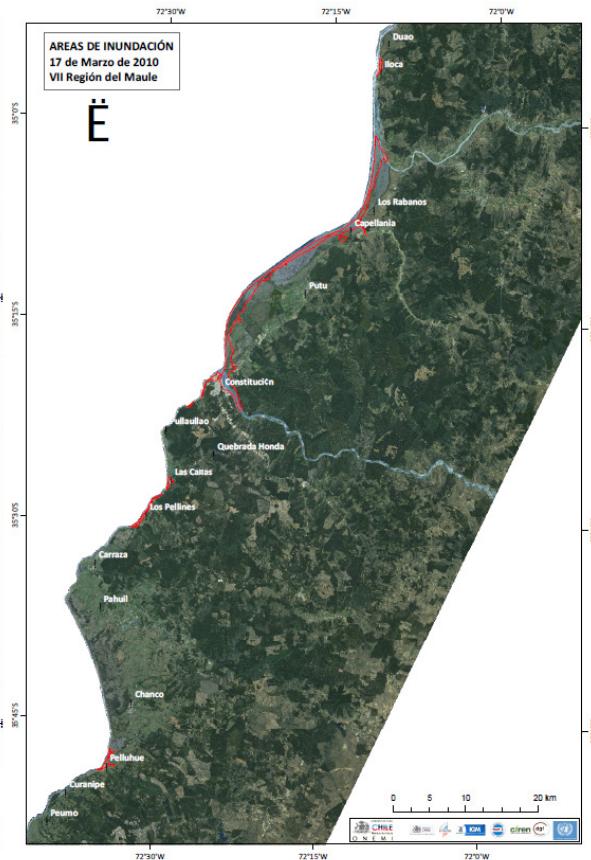
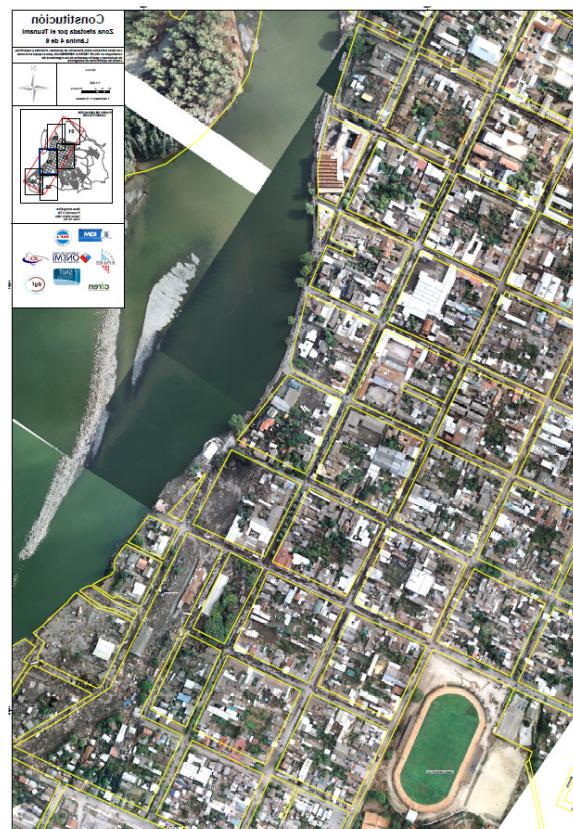


E4: Finally, the product in the databases and it is sent to the authorities (nationals, regional and locals) who has responsibilities in the assessment and planning actions of the damages caused by the seismic activity and further tsunami. The elaborated product are published in the geoportal of the National System of Coordination of the Territorial Information SNIT.



GOBIERNO DE
CHILE

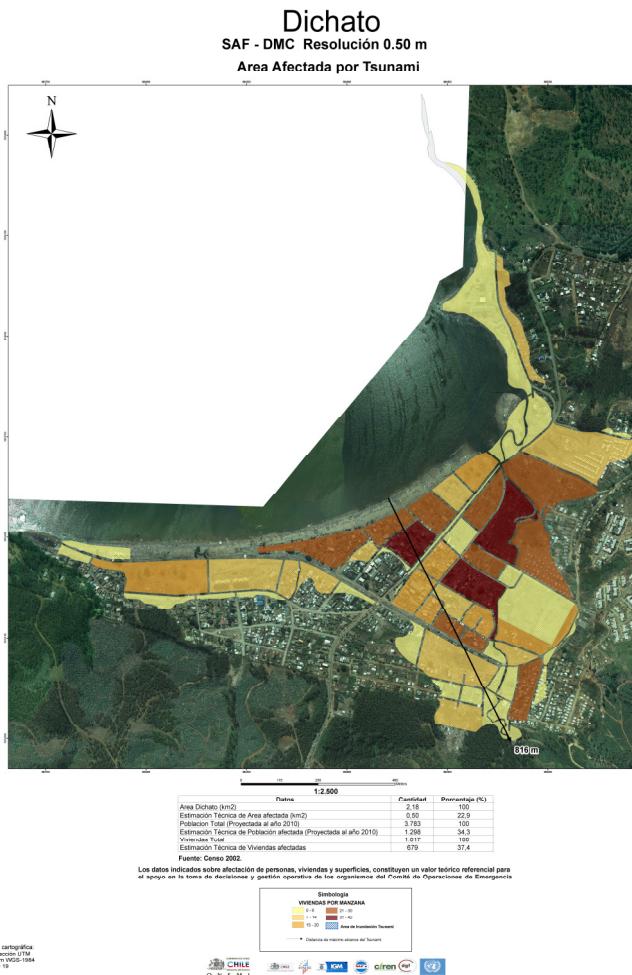
Examples of Products Made for GTMIG



Aerial photographs of the SAF DMC disaster-affected areas

Flood Areas developed from analysis of infrared images RapidEye Sensor 27th February.

Examples of Products Made for GTMIG



**Estimated damage
in people affected
and flooded homes
by area. Source:
National Institute of
Statistics from Chile**



Internet Support



INSTITUTIONS WITH CONTRIBUTIONS TO
GEO'S CHILE EVENT SUPERSITE



<http://chile.datadoors.net/DataDoorsWeb/Order.aspx>

GEO GROUP ON
EARTH OBSERVATIONS

Super Site



Satellite

TerraSar-X

CosmoSkyMed

WorldView-01

Quickbird

GeoEye-1

Ikonos-2

Formosat

RapidEye

ALOS/AVNIR-2

EO-1

ASTER

CBERS

SPOT

FROM 28 FEBRERY



INTERNATIONAL CHARTER "SPACE AND MAJOR DISASTERS" PROGRAMME AND OTHER SUPPORT

Nº	Act.	Agency	Satellite	Location
297		CNES	SPOT	Concepción
299		CNES	SPOT	Isla Juan Fernández
297		USGS	LANDSAT	Concepción
297		DMC	DMC Constellation	Concepción
297		JAXA	ALOS	Concepción
297		CNSA	CBERS	Concepción
298		CSA	RADARSAT	Cerca de Teno
298		ISRO	IRS	Cerca de Teno
299		ISRO	IRS	Isla Juan Fernández



CENTRE NATIONAL D'ÉTUDES SPATIALES



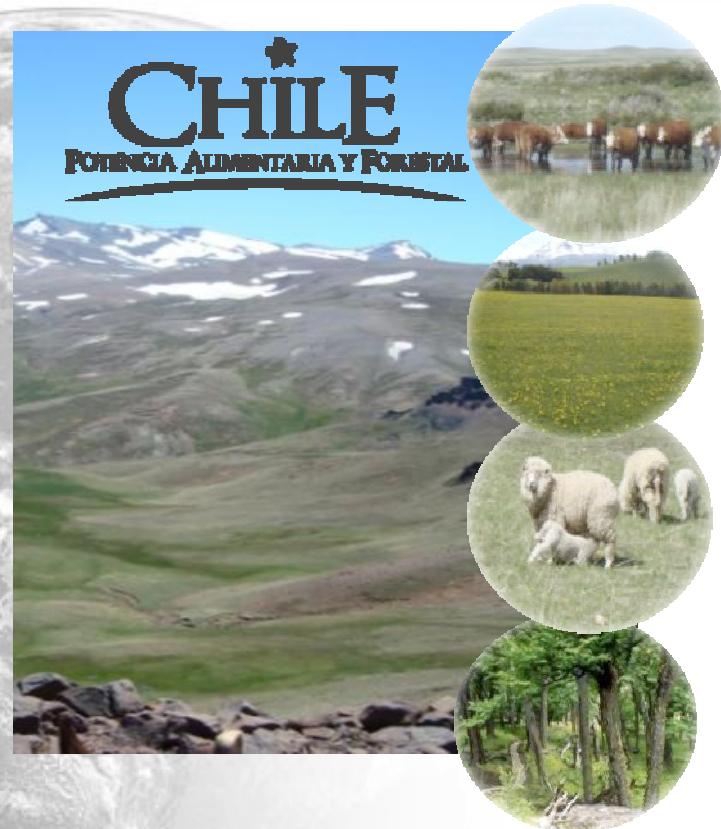
Feasibility study of a Communications Satellite

Objective

Technical feasibility, economic, financial and strategic studies, to recommend or implement any viable alternative to use a satellite communications..



Projects



"Transfer Models in Watershed Productive Land Management"

(Cisnes River, Palena Bajo River, Aysén River)

Objectives:

To encourage and promote sustainable forestry and agricultural production development in three areas of regional importance, through the generation, management and transfer of updated information on natural resources and socio-economic activity exist in each level of detail (1:5000 1:20000)

Coyhaique, March 2010



International meeting in chile -2010

II SEMINARIO INTERNACIONAL, Valparaíso 23 de Junio de 2010

“Uso y Aplicaciones en Teledetección orientadas a Desastres Naturales y Gestión Pública”

Objetivo:

Seminario organizado por la Agencia Chilena del Espacio dedicado a conocer las experiencias nacionales e internacionales acerca del uso y aplicaciones de la Teledetección.



“Pasado, Presente y Futuro de la Actividad Espacial en Chile”

Expositor: Sr. Juan Fdo. Acuña A., Secretario Ejecutivo, Agencia Chilena del Espacio (ACE)

“La información de origen espacial ante las emergencias”.

Expositor: Sr. Gabriel Platzeck, Comisión Nacional de Actividades Espaciales (CONAE, Argentina)

“Aplicaciones Satelitales para Teledetección”

Expositor: Sr. Christian Grebaut, Gerente de Operaciones Internacionales EADS-Astrium, Francia.

“12 años de Teledetección siguiendo desastres”

Expositor: Dr. Jesús Artieda, España.

“Gestionando el Mundo Rural de Aysén a partir de la Ordenación Territorial y la Teledetección Espacial”.

Expositor: Sr. Cristian López M. , Director Regional Servicio Agrícola y Ganadero - Aysén.

“TerraSAR-X: Uso de Imágenes Radar en Casos de Desastres”

Expositor: Sra. Alejandra González, Infoterra (Alemania).

“Aplicaciones de la Teledetección Satelital en la Policía de Investigaciones de Chile”

Expositores: Sr. Rodrigo Carvajal- Sra. Claudio Clavero- Sr. Juan Carrasco. Policía de Investigaciones de Chile.

“Sistema Satelital de Observación de la Tierra de Chile: Una Contribución al Desarrollo de la Capacidad Espacial Nacional”.

Expositor: Cdte. de Grupo, Sr. Cristian Puebla N. FACH.

“Magnitud e impacto del Tsunami chileno de 2010”

Expositor: Dr. Marcelo Lagos, Director Tsunami Research Lab. Instituto de Geografía Universidad Católica de Chile.

“El Impacto de las Imágenes en el Gobierno de Hoy”.

Expositor: Sr. Juan E. Silva, Director ESRI Chile.

“La Operacionalización de un Sistema de Teledetección Nacional”.

Expositor: Cdte. de Escuadrilla Sr. Rodrigo Fuentes N., Gerente Operacional y Comercial del Servicio Aerofotogramétrico, SAF.

International meeting in chile -2010

Latin American Remote Sensing Week (LARS)



LARS es la primera versión de la Semana Latinoamericana de Percepción Remota, denominada “Exploradores del Sur”, es organizada por el Servicio Aerofotogramétrico (SAF) y cuenta con el auspicio de la Sociedad Internacional de Fotogrametría y Percepción Remota (ISPRS) y la Sociedad de Especialistas Latinoamericanos en Percepción Remota y Sistemas de Información Espacial (SELPER).

En esta Actividad, la Agencia Chilena del Espacio organizará uno de los Workshop relacionado con las aplicaciones civiles de las imágenes satelitales en emergencias y desastres naturales.

Temas de la Conferencia:

- Desarrollo de la Actividad Espacial
- Plataformas, sensores y adquisición de datos
- Aplicaciones y técnicas avanzadas de observación de la Tierra
- Sistemas de procesamiento, clasificación de imágenes y análisis cuantitativo
- Cartografía, fotogrametría y mapas móviles
- Base de datos, SIG, servicios WEB y modelos geoespaciales
- Patrimonio, cultura y educación
- Infraestructura de datos espaciales

Auspiciadores:



Patrocina



COMISION BICENTENARIO
CHILE 2010

International meeting in chile -2010

Preparatoria VI Conferencia Espacial de las Américas
(Santiago de Chile, 22 y 23 de Julio de 2010)



Organización, en conjunto entre el Ministerio de Relaciones Exteriores y la ACE, de la preparatoria de la VI Conferencia Espacial de las Américas; donde se preparara la agenda de la VI CEA que se hará en Pachuca, México del 15 al 19 de Noviembre de este año.



Capítulos Agenda Reunión Preparatoria VI CEA Santiago, 22 y 23 de Julio de 2010

Capítulo 1: Política Espacial Regional

1. Hacia una Política Regional Espacial
2. Creación de un Fondo Económico para Proyectos de Cooperación en Ciencia y Tecnología Espacial
3. Seguimiento de la Declaración del Milenio y UNISPACE III

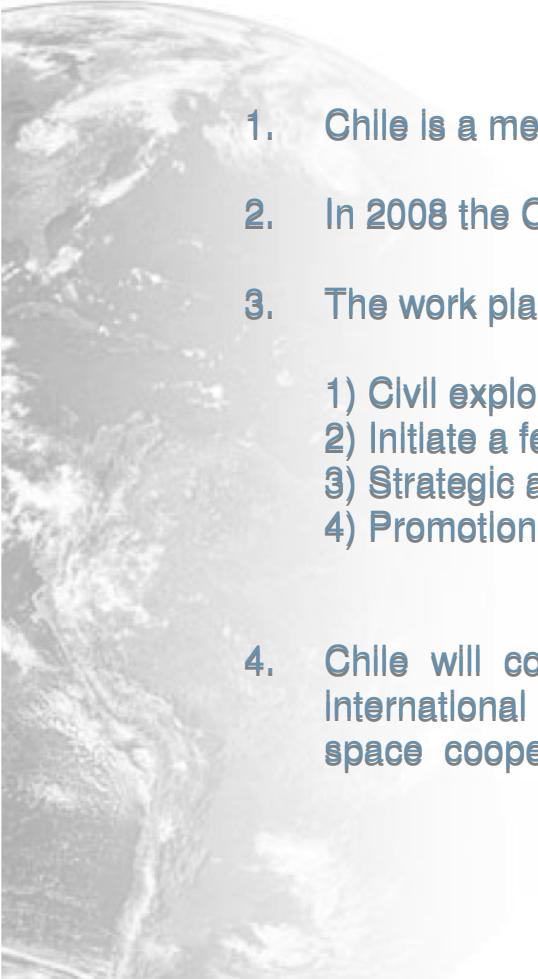
Capítulo 2: La Tecnología Espacial en los Procesos Educativos de las Américas

1. Teleeducación y educación a distancia
2. Educación espacial

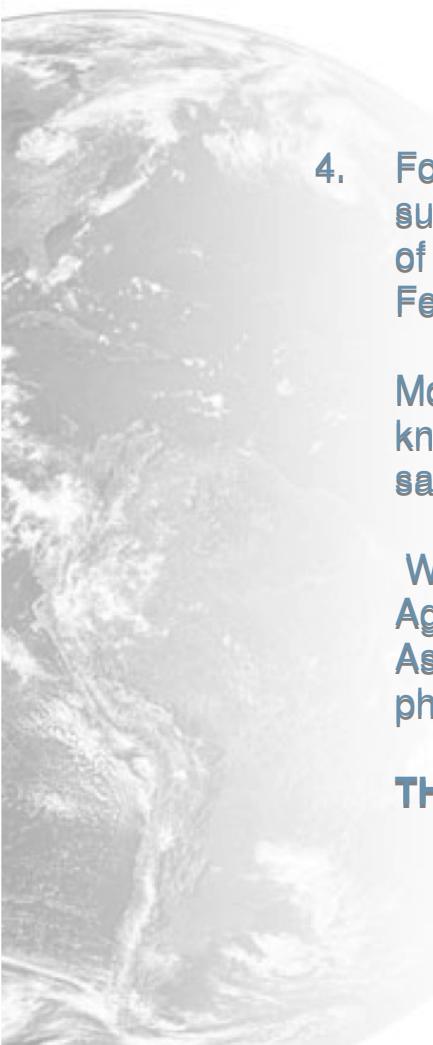
Capítulo 3: Prevención y Gestión de Desastres Naturales

1. Uso de las Tecnologías Espaciales para Emergencias y Desastre Naturales

Conclusions

- 
1. Chile is a member of this Commission of the United Nations since the year 2002.
 2. In 2008 the Chilean Space Agency was relocated to the Ministry of Economy.
 3. The work plan for years 2010-2011 considers the following important priorities:
 - 1) Civil exploitation of satellite imagery.
 - 2) Initiate a feasibility study for a Chilean Telecommunication satellite.
 - 3) Strategic alliances, national and international.
 - 4) Promotion of the use of space technology.
 4. Chile will continue to focus its technical and scientific efforts to cooperate with the International community in the peaceful use of outer space making special efforts in the space cooperation in the Americas Region.

Conclusions

- 
4. For Chile It is of utmost priority, to express our deep gratitude for the impressive support received from all the international space community reflected in hundreds of satellite images with pre and post earthquake/tsunami occurred at 27th of February 2010.

Moreover, many International organizations were present in Chile taking knowledge in-situ, others built super websites making accessible different kind of satellite images.

With this support the specialized organisms associated with the Chilean Space Agency and The National Emergency Office could evaluate in a good way the Assessment Work and up to now and on, we are still using the data available in the phase of reconstruction.

THANKS VERY MUCH FROM THE BOTTOM OF OUR HEARTS!!

(COPUOS)
Chilean Space Agency
(*Secretariat of Economy of Chile*)
Space in Chile: Past, Present and Future



Juan Fernando Acuña Arenas
Executive Secretary
Vienna, June 2010

Thank you!