

**Spatial Information Management and Workflow at IGM GDB**  
 ("Latitud Sur Project" - 1:25.000 Cartographic Production)

90 AÑOS APOYANDO EL DESARROLLO NACIONAL  
 90 YEARS SUPPORTING THE NATIONAL DEVELOPMENT

**IGM**  
 INSTITUTO GEOGRÁFICO MILITAR  
 Cartografía Oficial del Estado de Chile

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**FIG XXV International FIG Congress**  
 Kuala Lumpur, Malaysia, 16–21 June 2014

**Military Geographic Institute**

**MISIÓN**

- Constitutes the official authority, on a permanent basis and representing the State, in all matters relating to geography, surveying and mapping of the Chilean territory.

**MISIÓN**

- Constitutes and provides a permanent technical information service concerning the Chilean geography, as required by State organisations for the development and security of the nation.

**VISIÓN**

- Constitutes the national point of reference where the creation of geo-spatial information starts.

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### SOME FACTS: GENERAL DESCRIPTION OF CHILE

- Total Surface: 2,006,096 Km<sup>2</sup>.
- Population: 2012 Census (INE): 16,634,630 inhabitants.
- Costal Line: 6435 kms. 4630 kms. North to south.



**International boundaries:**


- Peru: 180 kms.
- Bolivia: 850 kms.
- Argentina: 5,600 kms.






### IGM PRODUCTS AND SERVICES


**1:500,000**                      STANDARD BASE CARTOGRAPHY




**22**



**80**



**1445**



## IGM PRODUCTS AND SERVICES

### Atlases and Publications



### Maps of Chile



### Multimedia CDs



### Continental and world maps





## LATITUD SUR PROJECT

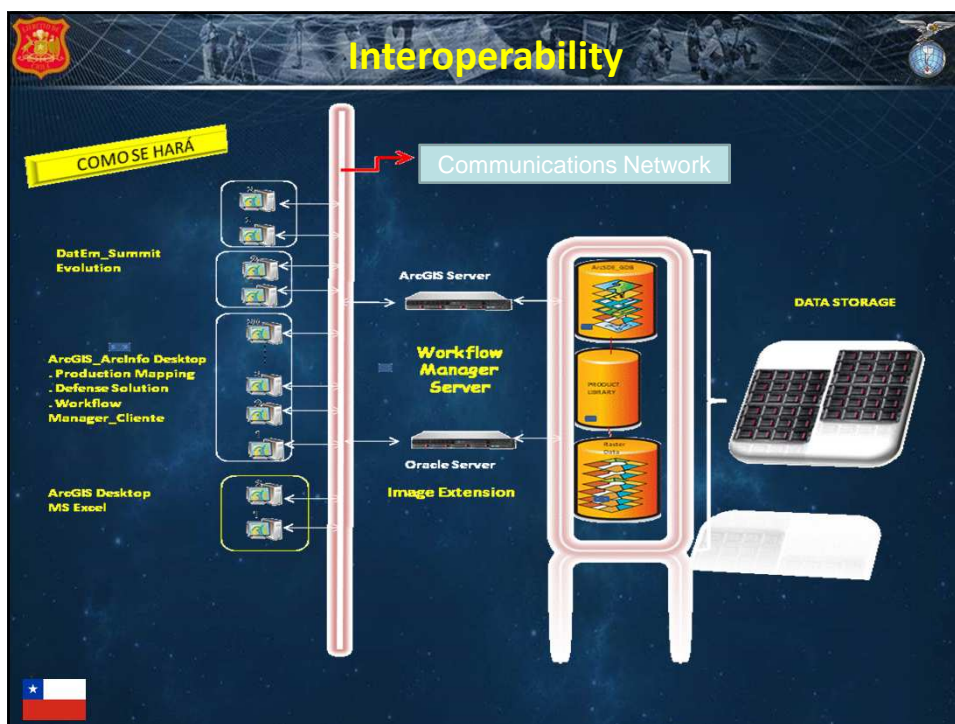
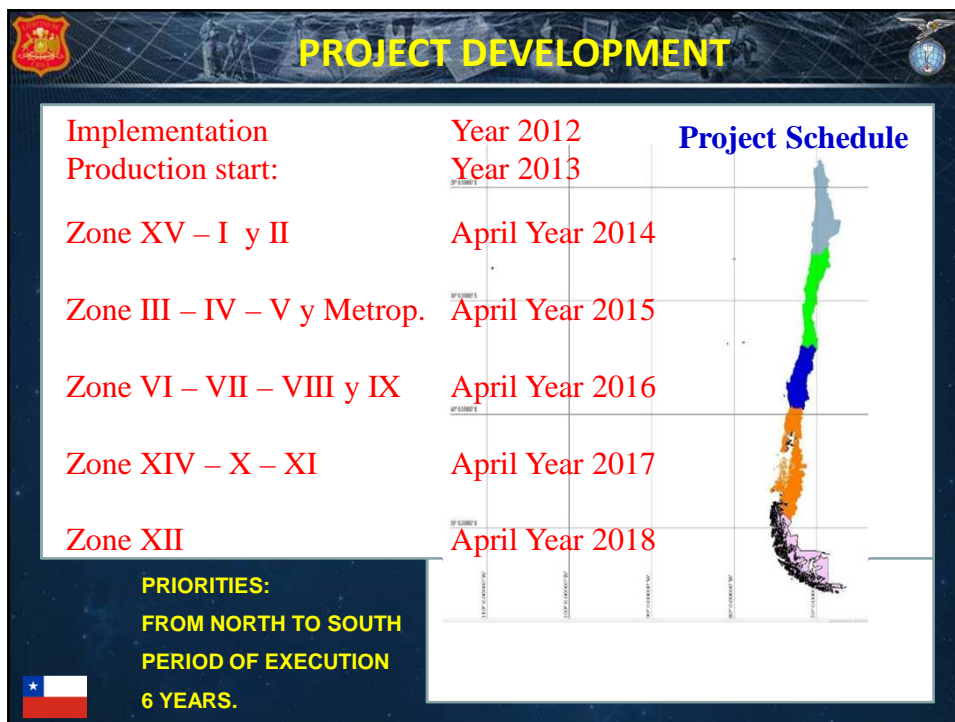
**New Cartographic Base Maps 1:25,000 scale for military purposes, national development and Chilean reconstruction.**

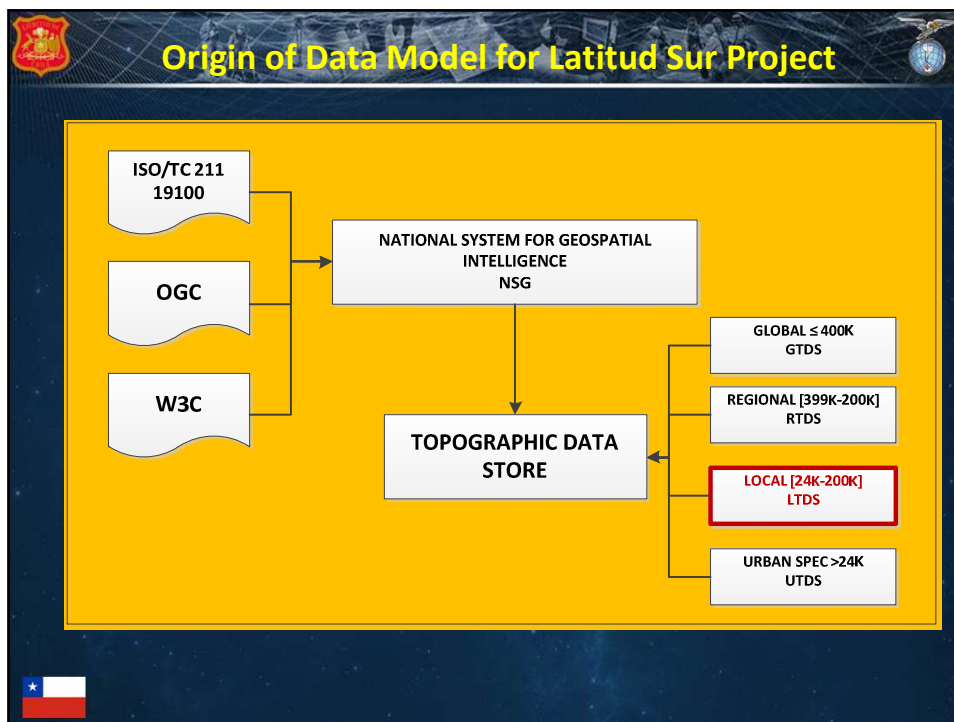


**LATITUD SUR**  
Cartografía digital del Territorio Nacional  
escala 1:25,000:  
Una fortaleza para las Fuerzas Armadas  
2009









### Technical Characteristics

ISO 19100 family standards for Geographic Information / Geomatics

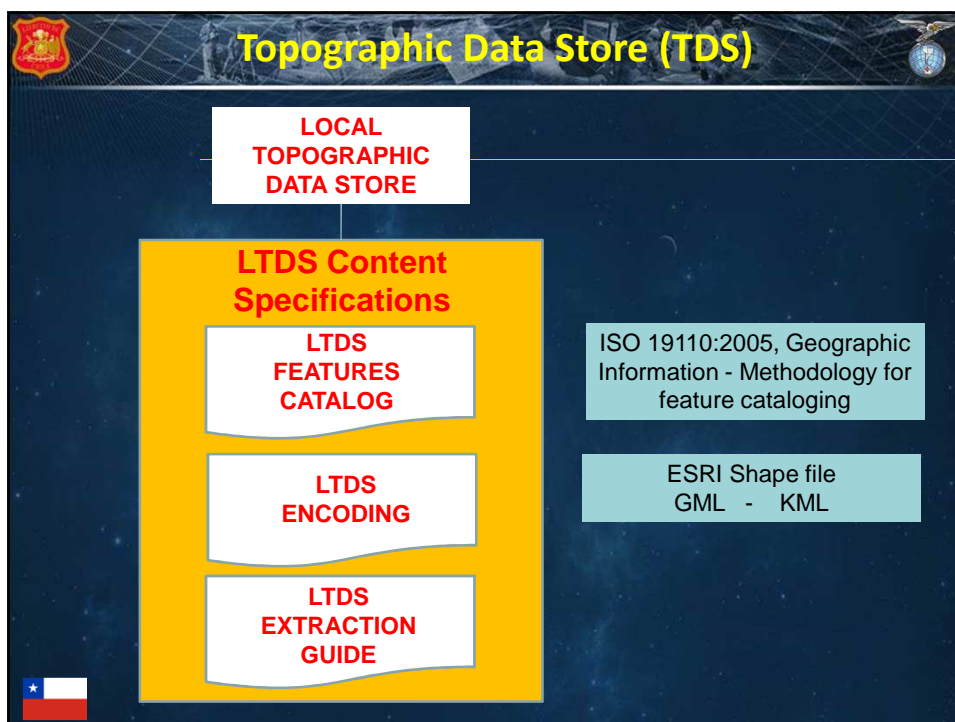
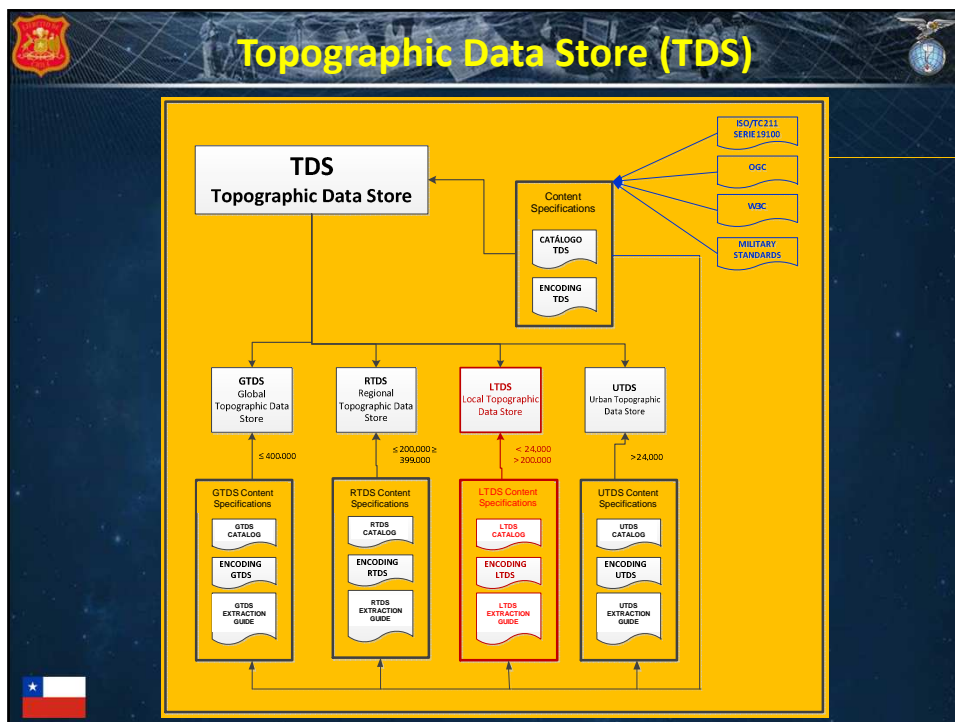
ISO 19131 : "Data product specifications"

- what types of geographic phenomena contemplate dataset
- how they will be organized
- how they will be cataloged
- how they will be represented
- Sources of extraction
- Quality expected levels
- Work methods

"HOW IS EXPECTED TO BE THE PRODUCT"

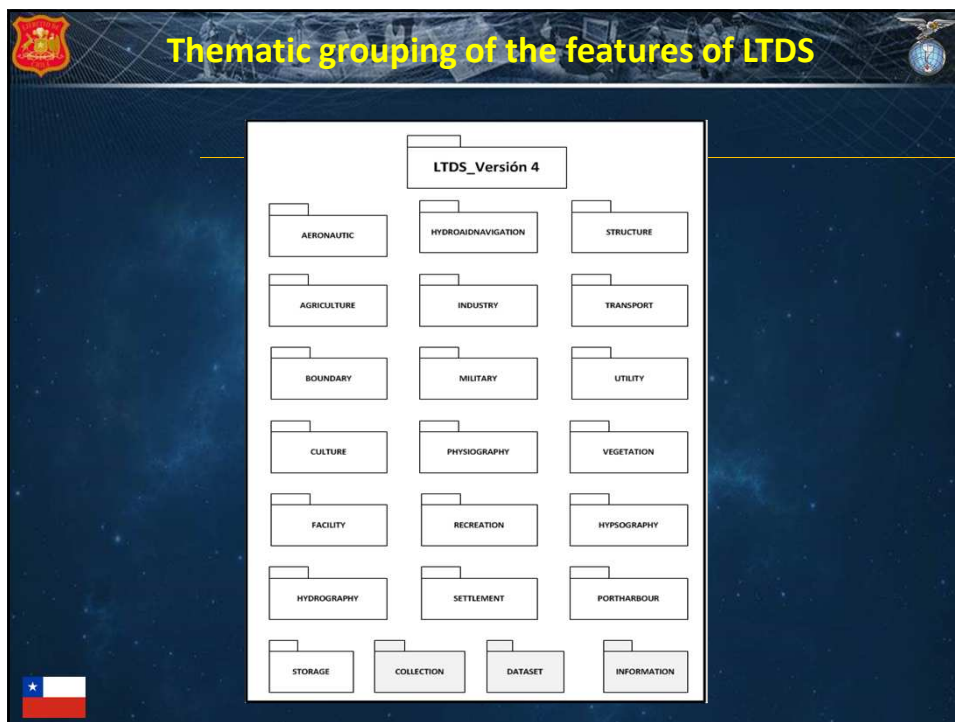
ISO 19115 : " Metadata" ..

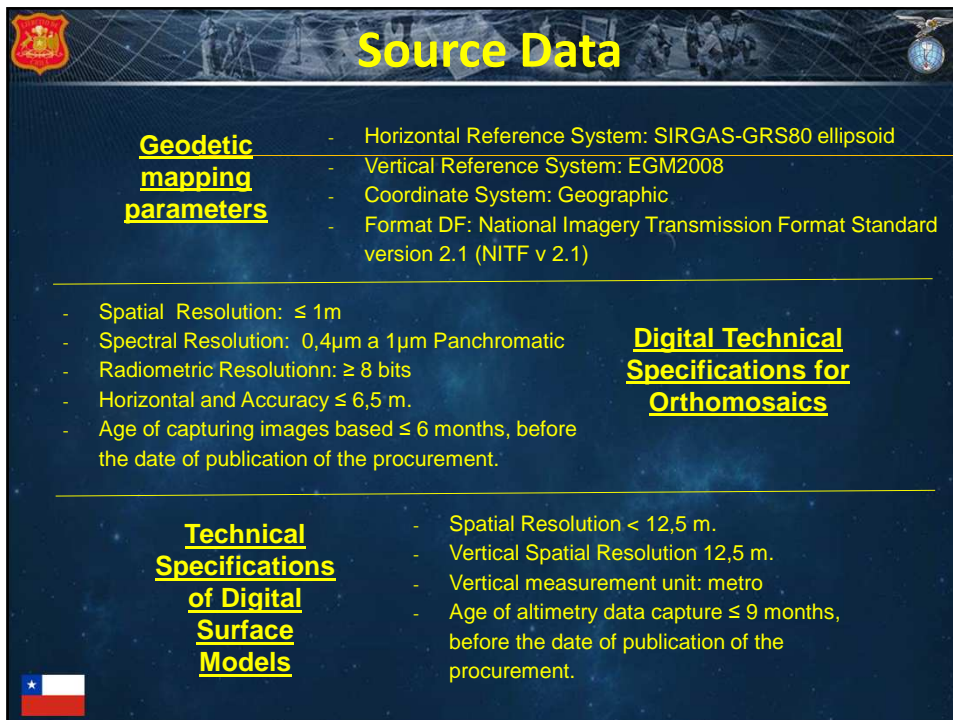
" HOW IT REALLY IS"



## LTDS Catalog

	Table Root Name	DFDD-like Code	IAS AlphaCode	Español	Point	Curve	Surface
1	<b>MILITARY</b>						
149	AIRCRAFT_REVETMENT	G8050	AircraftRevetment	Barrera de Protección de Aeronaves	P	C	S
151	DRAGONS_TEETH	AL060	DragonsTeeth	Dientes de Dragón	P	C	S
152	ENGINEERED_EARTHWORK	AH025	EngineeredEarthwork	Trinchera	P	C	S
153	CASTLE_COMPLEX	AL376	CastleComplex	Complejo Fortificado	P	C	S
154	CASTLE	AL375	Castle	Castillo	P	C	S
155	FIRING_RANGE	FA015	FiringRange	Campo de Tiro	P	C	S
156	FORTIFIED_BUILDING	AH055	FortifiedBuilding	Edificio Fortificado	P	C	S
157	MILITARY_INSTALLATION	SU001	MilitaryInstallation	Instalación Militar	P	C	S
158	MISSILE_SITE	AL120	MissileSite	Lugar de misiles	P	C	S
159	SURFACE_BUNKER	AM060	SurfaceBunker	Bunker en Superficie	P	C	S
160	TRAINING_SITE	FA165	TrainingSite	Sitio de Entrenamiento	P	C	S
161	UNDERGROUND_BUNKER	AH060	UndergroundBunker	Bunker bajo tierra	P	C	S
162	CANTONMENT_AREA	SU004	CantonmentArea	Area de cuarteles militares	P	C	S
163	CASTLE_COMPLEX	AL376	CastleComplex	Complejo Fortificado	P	C	S
164	CASTLE	AL375	Castle	Castillo	P	C	S
165	DRAGONS_TEETH	AL060	DragonsTeeth	Dientes de Dragón	P	C	S
166	ENGINEERED_EARTHWORK	AH025	EngineeredEarthwork	Trinchera	P	C	S
167	FIRING_RANGE	FA015	FiringRange	Campo de Tiro	P	C	S
168	FORTIFIED_BUILDING	AH055	FortifiedBuilding	Edificio Fortificado	P	C	S
169	MILITARY_INSTALLATION	SU001	MilitaryInstallation	Instalación Militar	P	C	S
170	MINFIELD	AL065	Minefield	Campo Minado	P	C	S
171	MISSILE_SITE	AL120	MissileSite	Lugar de misiles	P	C	S
172	SURFACE_BUNKER	AM060	SurfaceBunker	Bunker en Superficie	P	C	S
173	TEST_SITE	FA100	TestSite	Sitio de Pruebas	P	C	S
174	TRAINING_SITE	FA165	TrainingSite	Sitio de Entrenamiento	P	C	S
175	UNDERGROUND_BUNKER	AH060	UndergroundBunker	Bunker bajo tierra	P	C	S





## Source Data

**Geodetic mapping parameters**

- Horizontal Reference System: SIRGAS-GRS80 ellipsoid
- Vertical Reference System: EGM2008
- Coordinate System: Geographic
- Format DF: National Imagery Transmission Format Standard version 2.1 (NITF v 2.1)

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- Spatial Resolution:  $\leq 1\text{m}$
- Spectral Resolution:  $0,4\mu\text{m}$  a  $1\mu\text{m}$  Panchromatic
- Radiometric Resolution:  $\geq 8$  bits
- Horizontal and Accuracy  $\leq 6,5$  m.
- Age of capturing images based  $\leq 6$  months, before the date of publication of the procurement.

**Digital Technical Specifications for Orthomosaics**

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**Technical Specifications of Digital Surface Models**

- Spatial Resolution  $< 12,5$  m.
- Vertical Spatial Resolution  $12,5$  m.
- Vertical measurement unit: metro
- Age of altimetry data capture  $\leq 9$  months, before the date of publication of the procurement.


## Data Quality

**ISO  
19100  
family**

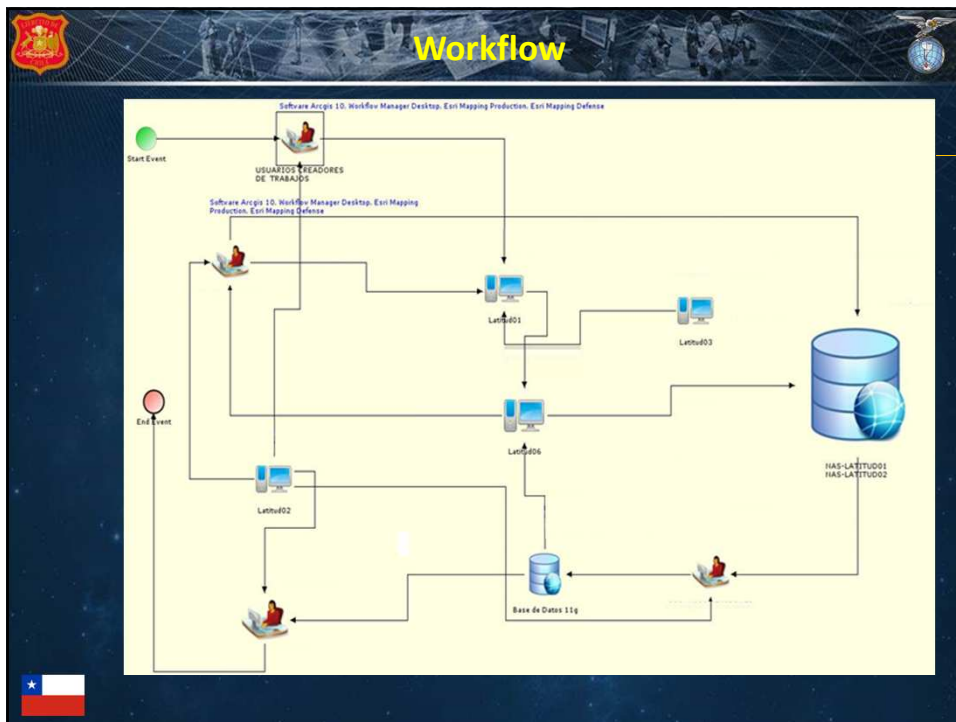
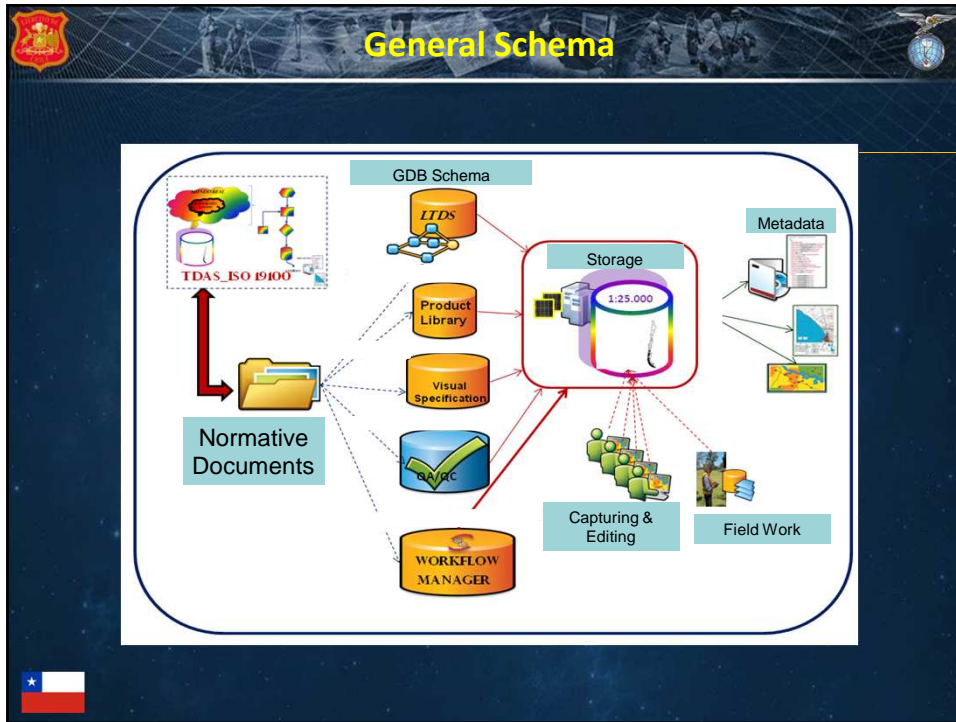
**ISO 19113:2002  
Geographic information  
Quality principles**


**ISO 19114:2003  
Geographic information  
Quality evaluation procedures**

**ISO/TS 19138:2006  
Geographic information  
Data quality measures**









## CONCLUSIONS


1:25.000 scale in the form of high-resolution vector will provide the Armed Forces and the country, information that accurately represents territory and meets the needs previously identified.

This repository also provides a common platform for multiple applications, providing interoperability among all sectors of national life and thus contributing to the consolidation of the Infrastructure of Spatial Data of Chile.

The data model, extraction guides and data sources used by the project allows to have a result interoperable and conforms to the highest international standards.

The work procedure adopted for the capture and management of spatial information has allowed to organize workflows in an automatic and organized way, and thus begin capturing of the national territory with very good results in its initial phase from the north of the country

The IGM is an organization with extensive experience in the earth sciences that is why this organization carrying out this project ensures that results will be the expected.




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# THANK YOU



# IGM

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