The Global Geodetic Observing System:
Future Organization and Recommendations

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International Association of Geodesy

GGOS http://www.ggos.org

The Global Geodetic Observing System: Future Organization and Recommendations

Chapter 10: Towards GGOS in 2020
Chapter 11: Recommendations

University of Nevada, Reno
Statewide • Worldwide

nbmg

GOOS 2020: Chapter 10

Chapter 10: Towards GGOS in 2020

G. Beutler, M. Pearlman, H.-P. Plag, R. Neilan, M. Rothacher, R. Rummel

- Introduces the main components
- Requests 'building on the heritage'
- Provides organizational considerations

- Does not discuss explicitly the 'business model'

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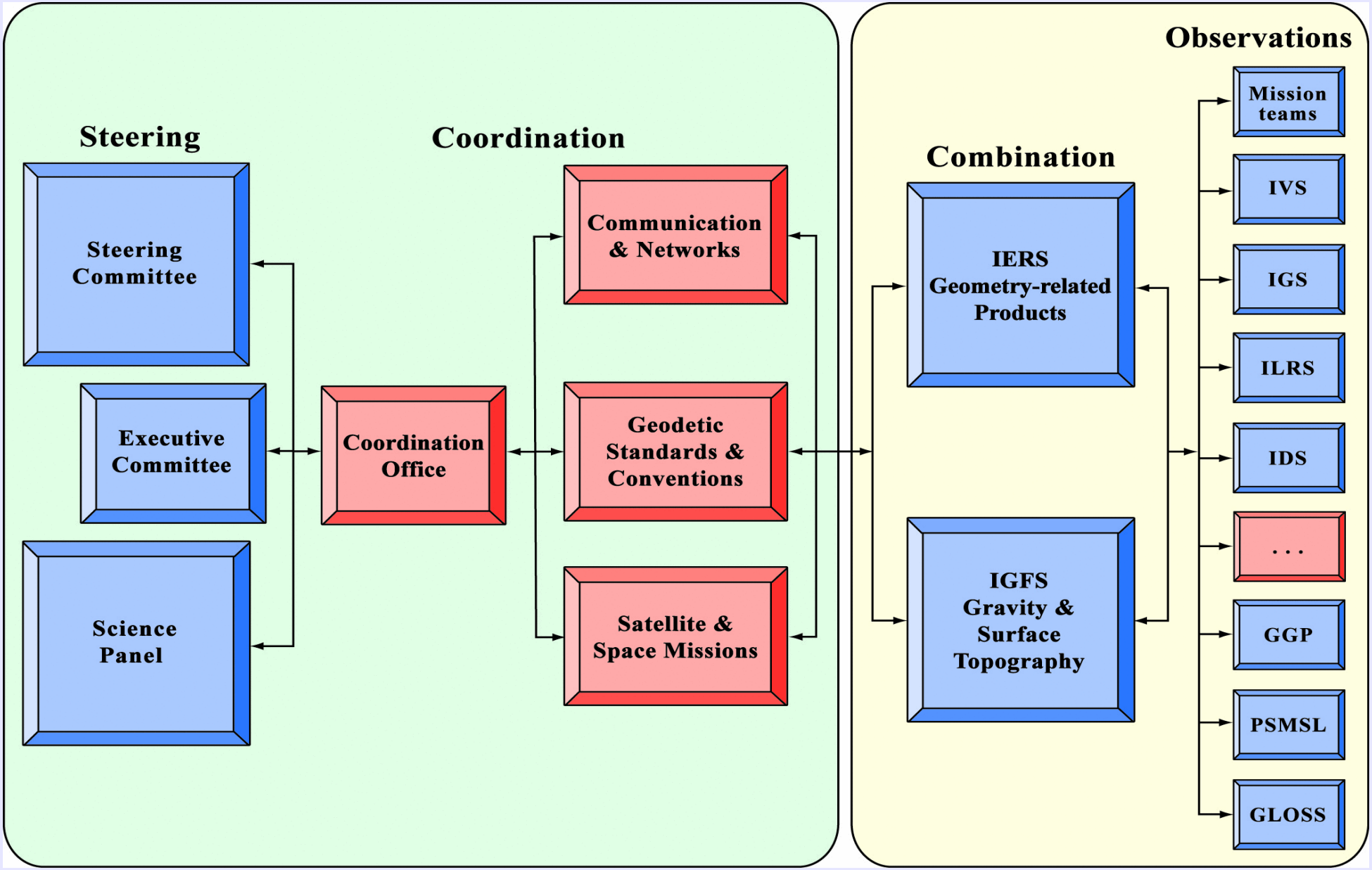
GOOS 2020: The Components

GGOS http://www.ggos.org



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GOOS 2020: The Heritage

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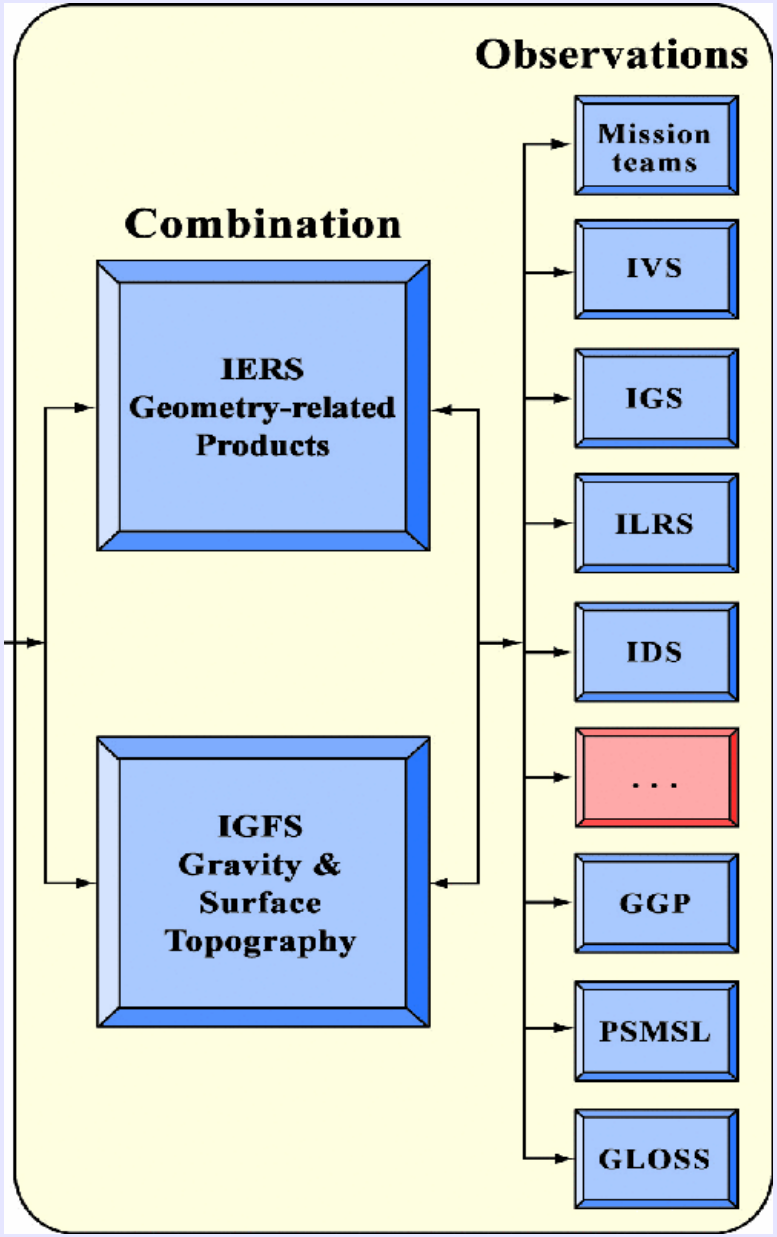
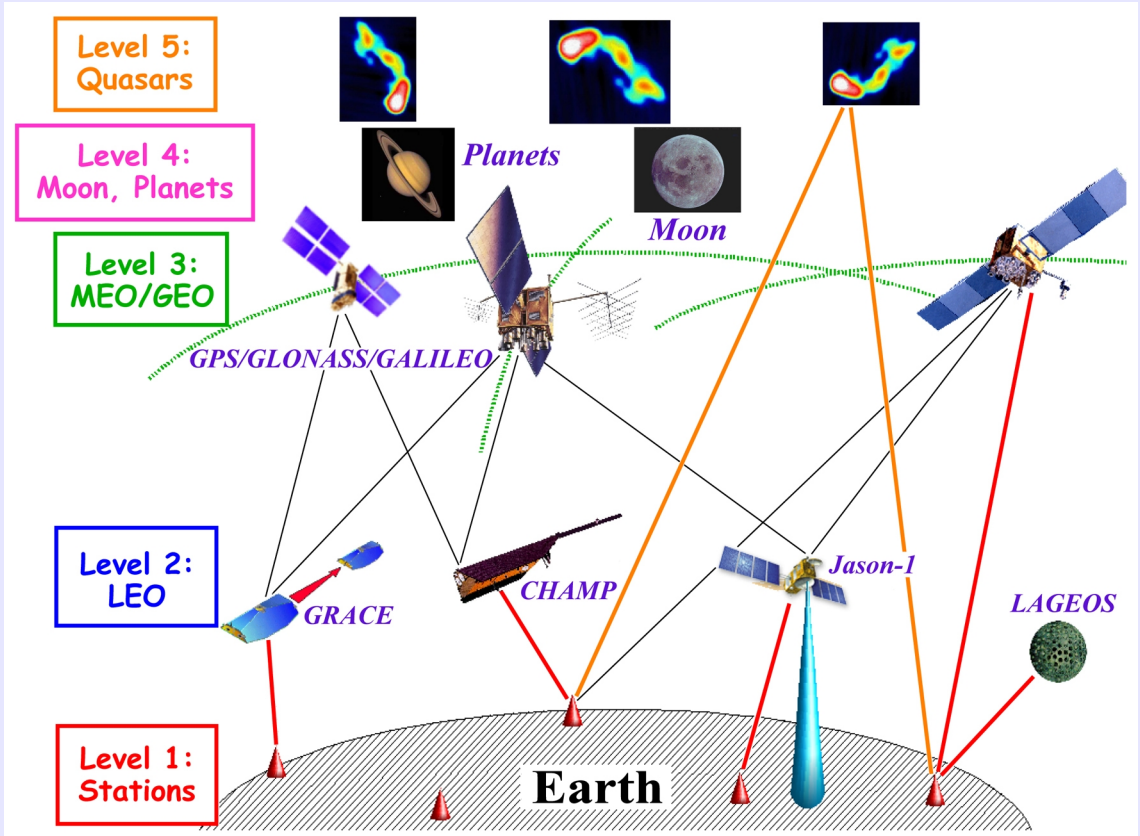
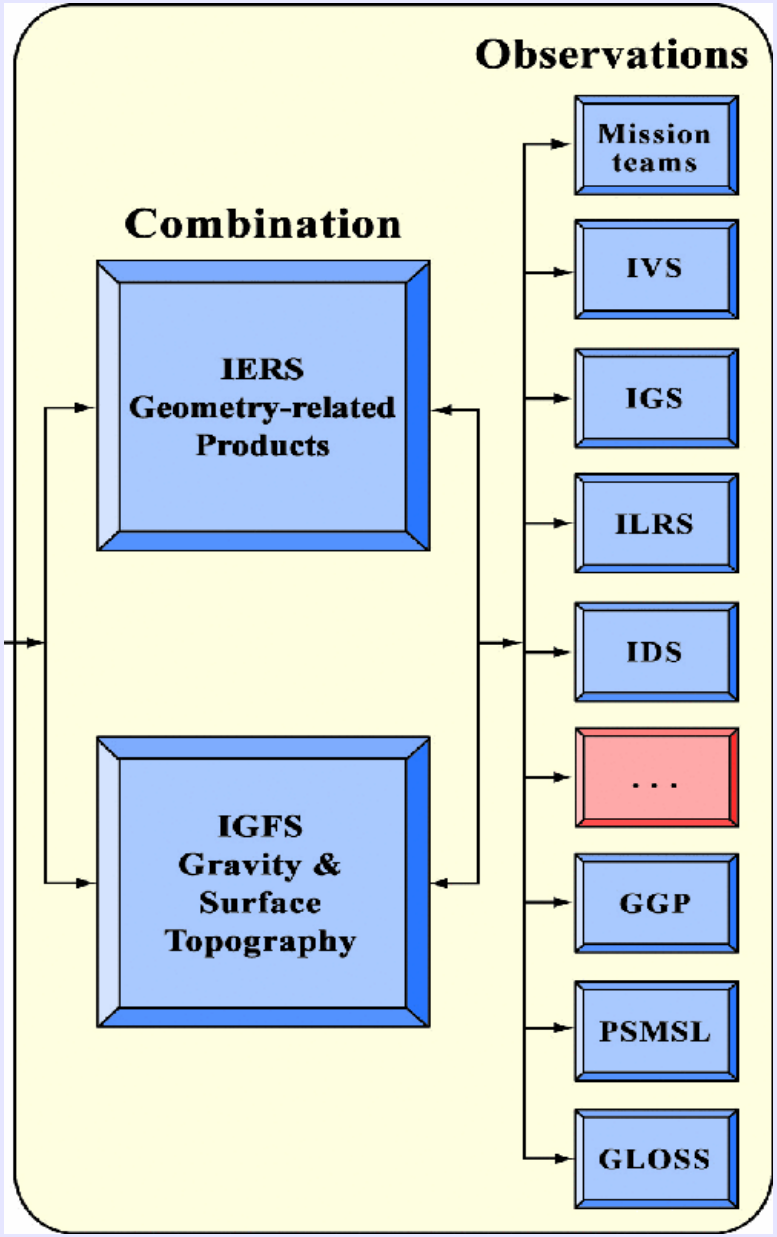
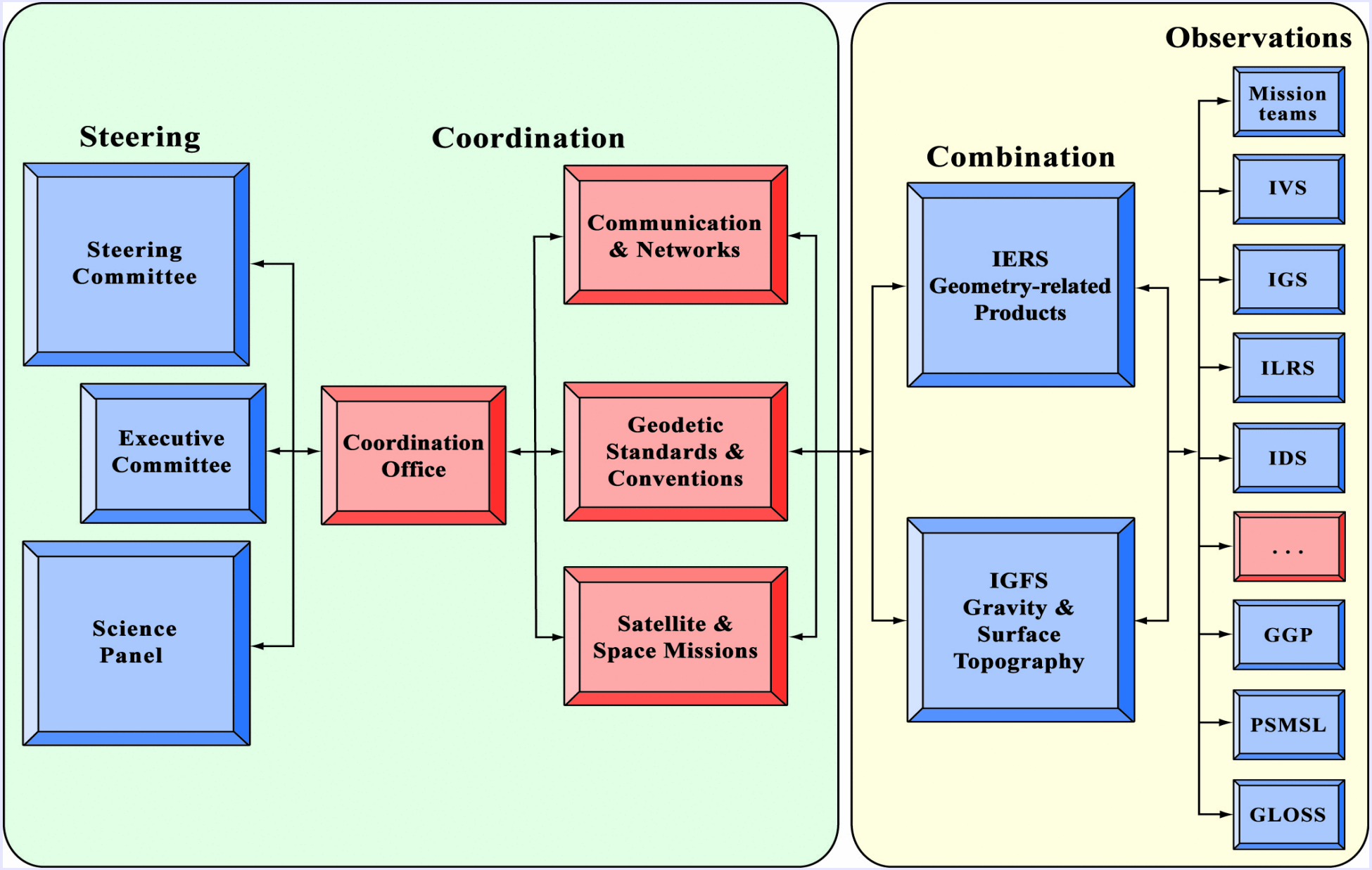


GOOS 2020: The Heritage





GOOS 2020: Organization



GOOS 2020: Business Model

Earth System Science Partnership review

- ESSP is an "umbrella" for ICSU and IGFA sponsored programs DIVERSITAS, IGBP, IHDP, WCRP

- GGOS is an "umbrella" for the IAG Services sponsored by IAG

Review discusses four different business models for ESSP

GOOS 2020: Business Model

Status-quo model

- Independent components contribute info to centre
- No regular interactions
- No common business plan
- A regular “network” model

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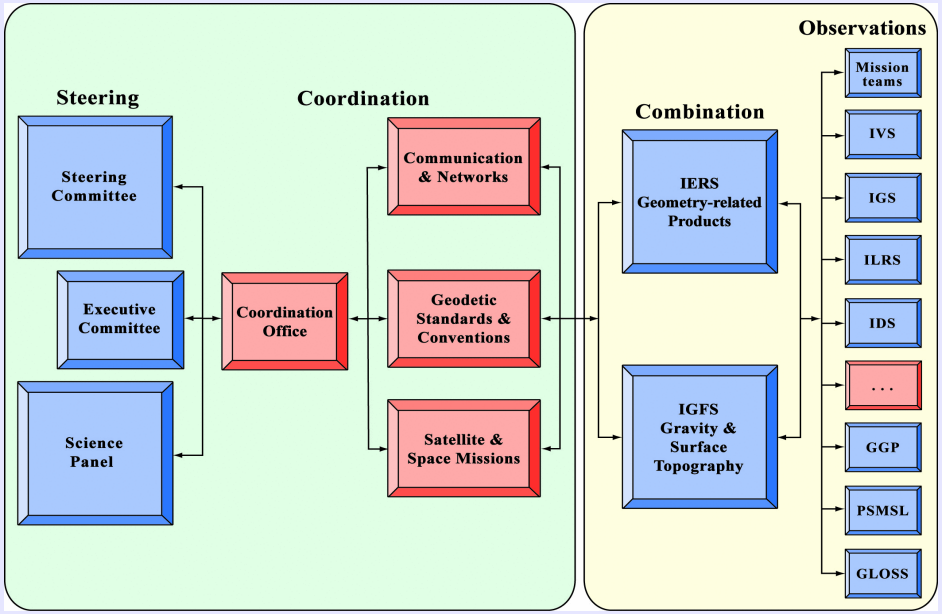

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GOOS 2020: Business Model

Alliance model

- Development of a common business plan.
- Regular interactions and communication
- A common framework for operations

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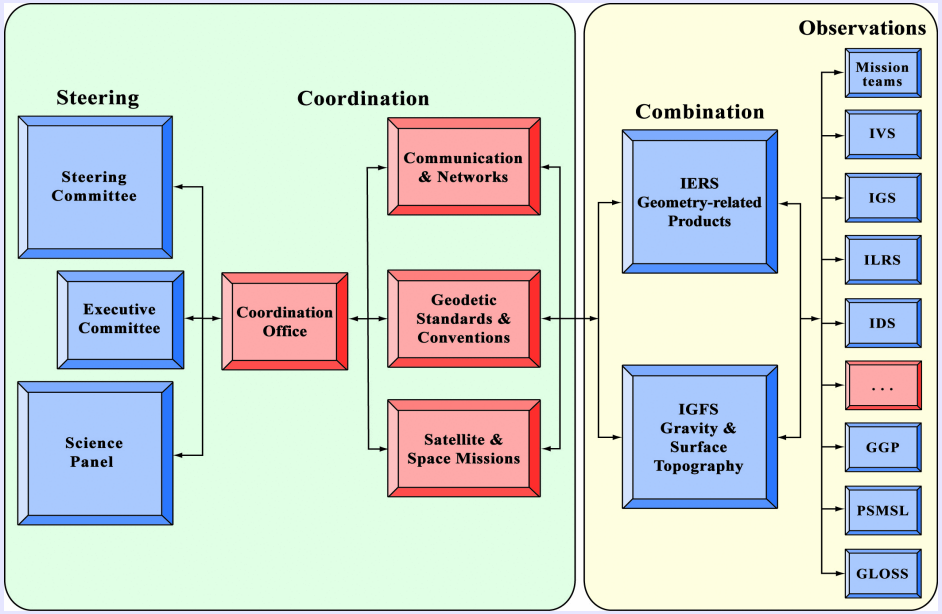
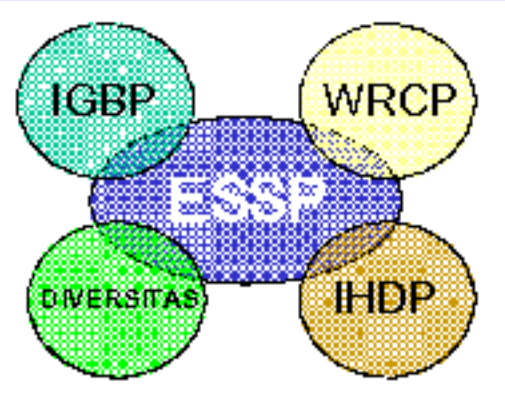


Alliance model

- Development of GGOS 2020
- Regular interactions and communication (WGs, workshops, newsletters, ...)
- A common framework for operations (Conventions, standards, procedures, web portal)

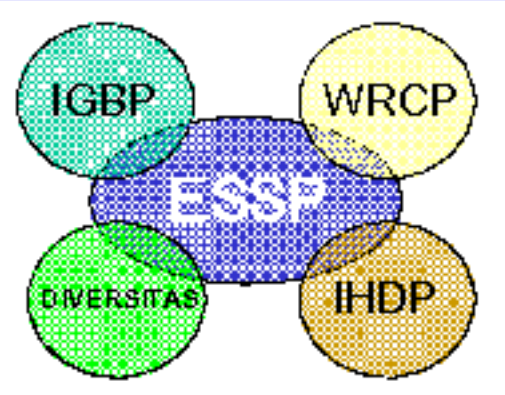
GOOS 2020: Business Model



Flagship model

- A common facility grown out of many different components (e.g., CERN)
- A common purpose driving components to do something substantial together.
- Greater sharing of intellectual capital.
- A common program where all give inputs.

GOOS 2020: Business Model



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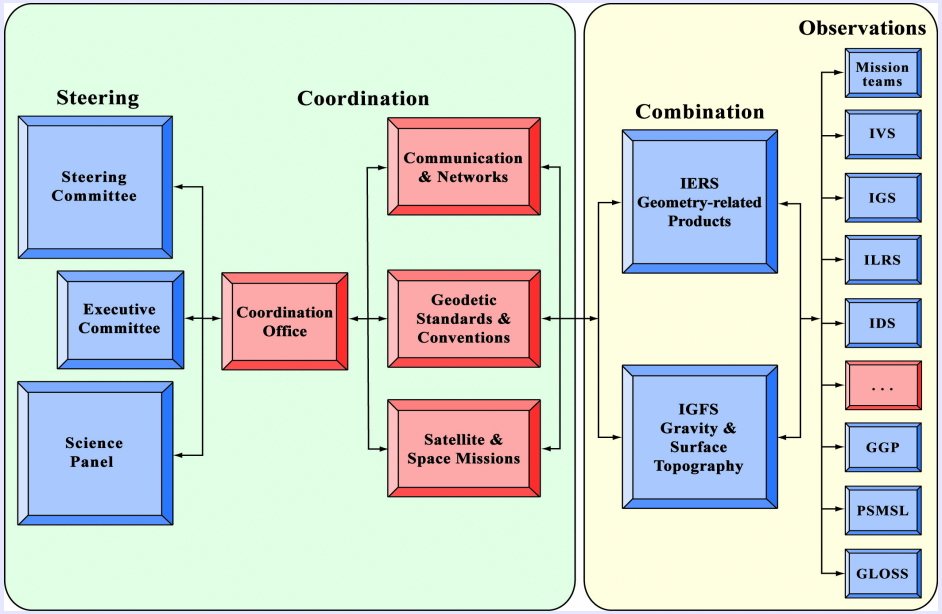
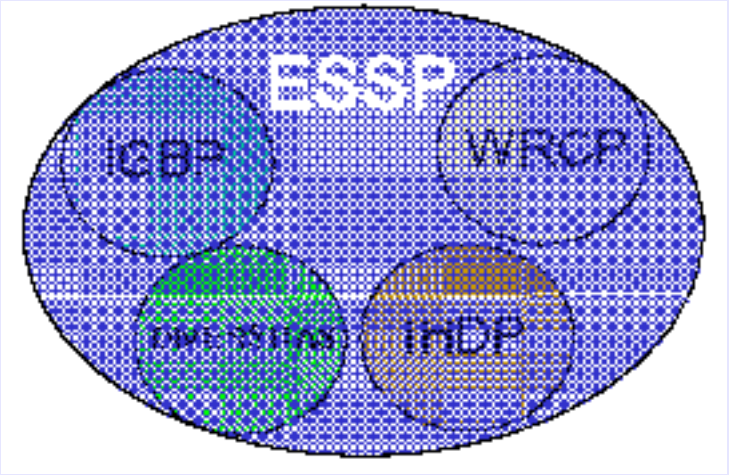


Flagship model

- A common facility: Portal
- A common purpose: Ref.Sys.
- Sharing of intellectual capital: algorithms, products
- A common program: GGOS 2020/implementation plan

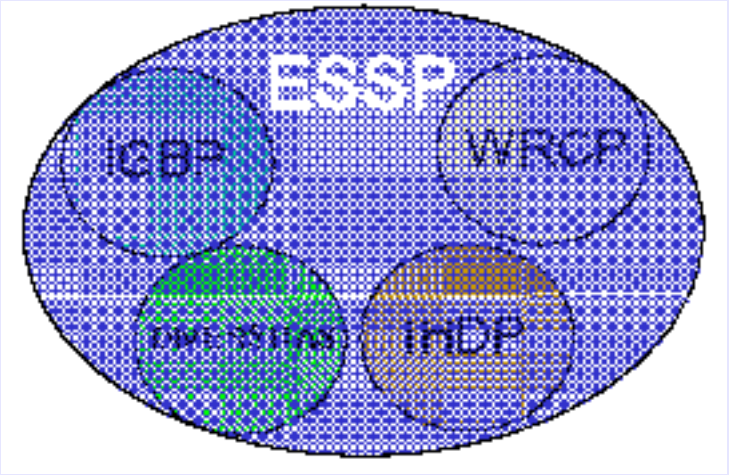
GOOS 2020: Business Model



Fusion model

- Shared vision and mission
- Integrated structure and governance
- Shared funds

GOOS 2020: Business Model



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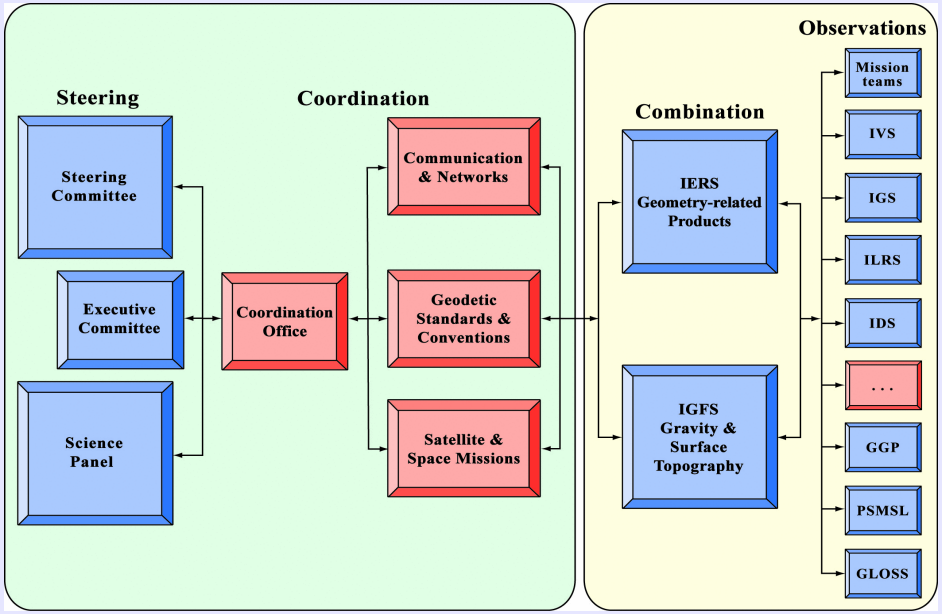

Fusion model

- Shared vision and mission: No
- Integrated structure and governance: No
- Shared funds: No

GOOS 2020: Chapter 11

Recommendations

H.-P Plag, G. Beutler, R. Gross, T.A. Herring, P. Pauli, C. Rizos, M. Rothacher, R. Rummel, D. Sahagian, J. Zumberge

Regarding:

- Framework conditions
- Infrastructure
- Products
- Organizational
- Specific actions

Relevant for

- Internal for IAG/GGOS
- Committee on Earth Observing Satellites (CEOS)
- Group on Earth Observation (GEO)

GOOS 2020: Chapter 11

Recommendations

GOOS 2020: Chapter 11

C	N	Title	Focus	To
1	1	Transition from research to operational	Establishment/identification of ore operational infrastructure	Internal/Funding agencies
	2	Global reference systems	Facilitate agreements on global level	Internal/GEO/...
	3	Outreach and eduction	Dedicated effort in outreach and education	Internal
3	1	Towards new reference systems	Combination of the three pillars will require new systems	Internal
4	1	Promotion of ITRS and maintenance of ITRF	ITRS should be THE global system for georeferencing and ITRF should be maintained and accessible as its realization	Internal/GEO/FIG/ ...
	2	Link between science and application	Strengthen link between "scientific geodesy" and "practical geodesy"	Internal
	3	Link between IAG and other operational organizations	Maintain/develop cooperation with ISPRS, FIG, IAIN, IEEE, IUGG, ...	Internal
	4	Embracing new technologies	Integrate new technologies (such as DinSAR, GNSS-RTK, ...)	Internal

GOOS 2020: Chapter 11

C	N	Title	Focus	To
5	1	Representation in Earth Observation Committees	GGOS maintain formal representation in relevant Earth observation committees	Internal/EO Committees
	2	Real-time access to data of GNSS tracking stations	Effort to connect existing and future GNSS sites to near-real time communication to support non-geodetic applications	Internal/GEO/ WMO/seismology/ ...
	3	Gravity field and circulation models	Establish contacts to Earth system modeling community to discuss improvements	Internal/ES modeling community
	4	GNSS and climate studies	Archive GNSS data together with sufficient meta data	Internal
	5	GGOS and monitoring of the global water cycle	Encourage a global water cycle service	Internal/GEO
	6	GNSS seismology	Promote the development of GNSS seismology particularly for early warning	Internal/GEO
6	1	GGOS in support of planetary missions	Develop GGOS to meet the requirements of planetary missions	Internal

GOOS 2020: Chapter 11

C	N	Title	Focus	To
7	1	Threshold and target values for GGOS	Set up threshold and target values for accuracy, resolution, latency, …	Internal/GEO
	2	GGOS database of user needs and observational requirements	Maintain a database of user needs and observational requirements	Internal/GEO
	3	Improved access to ITRF	Focus on improved access to ITRF with low latency, high spatial resolution, long-term stability	Internal
8	1	Future reference frame approach based on extended model	Encourage development of models an base future frame on dynamic models	Internal
	2	Towards an integrated Earth system model	Develop an integrated Earth model for both forward modeling and inversion	Internal/ES modeling community
9	1	Augmentation of current global geodetic infrastructure	* Gaps in infrastructure be closed: global network of core stations; absolute and superconducting gravimeters; two additional SLR satellites *operational core system for Earth system service; * operational core system include ground networks; continuous gravity satellites; missions for ice sheets and water surfaces; and missions for solid Earth surface.	Internal/GEO/ CEOS/space agencies

GOOS 2020: Chapter 11

C	N	Title	Focus	To
10	1	Continuation of IAG Services	Technique-specific services be continued and funding be secured	GEO/funding agencies
	2	Uninterrupted sequence of satellite missions	Develop a plan for uninterrupted series of geodesy-related satellite missions	Internal/CEOS/ space agencies/ GEO
	3	Continuation of IERS	IERS be continued and funding be secured	GEO/funding agencies
	4	Plan for gravimetric mission-independent products	IGFS develop a plan for mission-independent products and an entity to realize this plan	Internal
	5	Establishment of an IAS	IAS as an mission-independent altimetry service be integrated in GGOS and funding be secured	Internal/GEO/ CEOS/space agencies/funding agencies
	6	Establishment of an international InSAR services	An international InSAR service be integrated in GGOS and funding be secured	Internal/GEO/ CEOS/space agencies/funding agencies
	7	Standards and Conventions	GGOS entity responsible for standards and conventions be established	Internal
	8	Networks and Communication	GGOS entity responsible for networks and communication be created	Internal
	9	United nations support for GGOS	IAG continue its role in GEO and IAG and GGOS continue dialog on association of GGOS with appropriate UN agency	GEO/UN
	10	Establishment of a GGOS Coordinating Office	GGOS Coordinating Office be established and funding be secured	Internal/funding agencies/UN

GOOS 2020: Chapter 11

C	N	Title	Focus	To
A	1	GEO Resolution	GEO resolution recommending maintenance of the global geodetic infrastructure	GEO
	2	GGOS Stakeholder Conference	Organize GGOS Stakeholder Conference in 2008 to further develop the GGOS 2020 document(s)	Internal
	3	Establishment of the new GGOS Entities	CfP for Bureau of Geodetic Standards and Conventions, GGOS Coordinating Office immediately after GGOS Stakeholder Conference	Internal