Operation of GARS O‘Higgins in the view of technical facilities and mission requirements

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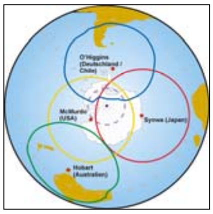


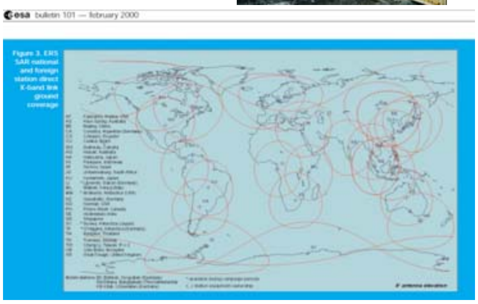


Table 1. National and foreign stations authorised for ERS acquisition

Station location	Ground station operator	Mobile/Fixed	Date of signature (ERS-1)	Date of signature (ERS-2)
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

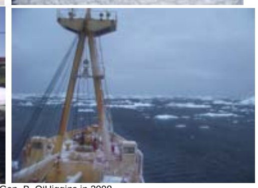
Construction and test installation of antenna at DLR – Germany (1990) before transportation into Antarctica.

Regarding the functional parts there are various device groups, which are nearly unmodified since the installation of the station in 1990/1991. In detail, these are the mechanical antenna parts and some basic electric and electronic subsystems: parabolic dish, gears and servo system (motors, servo amplifiers, analogue servo control unit, programmable logic controller PLC, HF components, down converters). Regular service and maintenance (only the replacement of few defect modules was necessary) kept the antenna system on a high functional level.

Assembly of antenna and station at Base O‘Higgins (1990/1991)

German station & Chilean station Gen. B. O‘Higgins in 1992

Travelling to the Antarctic station



German station (GARS) and Chilean station Gen. B. O‘Higgins in 2008

GARS and Gen. B. O‘Higgins during winter

Different stages of subsystems

1992

1998

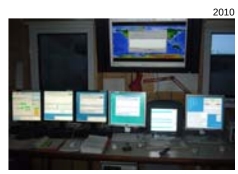
2009

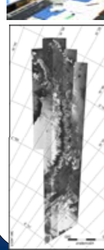
2001

2004

2009

2010



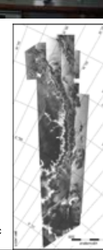


Winter:
ERS-2 Quicklook - Mosaic
July 1997

Snow areas in the Antarctic Peninsula

derived for SAR quicklook images

Summer:
ERS-2 Quicklook - Mosaic
January 1997



Data Acquisition ERS-1 & ERS-2 (HR-SAR; LR-GOME-etc.)
Summary of all ERS Acquisition Campaigns at GARS O’Higgins (TF)

name	period	campaign goal		satellites	acq. passes (HR)
TF910901:	24.09.91 - 12.10.91	test acquisition campaign		ERS-1	40
TF920103:	10.01.92 - 15.03.92	acquisition campaign		ERS-1	349
TF920701:	01.07.92 - 31.07.92	acquisition campaign		ERS-1	204
TF921101:	02.11.92 - 09.12.92	acquisition campaign		ERS-1	121
TF930103:	10.01.93 - 24.02.93	acquisition campaign		ERS-1	173
TF930801:	15.08.93 - 12.09.93	acquisition campaign		ERS-1	187
TF940103:	20.01.94 - 20.03.94	acquisition campaign		ERS-1	400
TF950102:	15.01.95 - 16.02.95	acquisition campaign		ERS-1	206
TF950300:	05.03.95 - 10.03.95	special acquisition request		ERS-1	5
TF951001:	15.10.95 - 20.11.95	tandem acquisition campaign		ERS-1/2	418
TF960103:	15.01.96 - 24.03.96	tandem acquisition campaign		ERS-1/2	879
TF961001:	15.10.96 - 18.11.96	acquisition campaign		ERS-2	118
TF970103:	25.01.97 - 20.03.97	acquisition campaign		ERS-1/2	285
TF970601:	27.06.97 - 18.07.97	acquisition campaign		ERS-2	118
TF980103:	15.01.98 - 24.02.98	acquisition campaign		ERS-2	135
TF990103:	13.01.99 - 23.02.99	acquisition campaign		ERS-2	149
TF991001:	28.10.99 – 21.11.99	acquisition campaign		ERS-1/2	111
TF000103:	29.01.00 – 24.03.00	acquisition campaign		ERS-1/2	189
TF001001:	01.10.00 – 17.10.00	acquisition campaign		ERS-2	76
TF010103:	16.01.01 – 25.02.01	acquisition campaign		ERS-2	82
TF020103:	14.01.02 – 10.03.02	acquisition campaign		ERS-2	135
TF021001:	10.10.02 – 31.12.02	acquisition campaign		ERS-2	239
TF030103:	01.01.03 – 26.02.03	acquisition campaign		ERS-2	172
TF031001:	01.10.03 – 03.12.03	acquisition campaign:	ERS2-LR: 509	ERS-2-HR	118
TF040103:	31.01.04 – 05.03.04	acquisition campaign:	ERS2-LR: 297	ERS-2-HR	83
TF040901:	27.09.04 – 31.12.04	acquisition campaign:	ERS2-LR: 950	ERS-2-HR	282
TF050103:	01.01.05 – 17.02.05	acquisition campaign:	ERS2-LR: 436	ERS-2-HR	103
TF050901:	27.09.05 – 04.12.05	acquisition campaign:	ERS2-LR: 654	ERS-2-HR	195
TF060103:	30.01.06 – 16.02.06	acquisition campaign:	ERS2-LR: 155	ERS-2-HR	50
TF060901:	07.09.06 – 05.12.06	acquisition campaign:	ERS2-LR: 824	ERS-2-HR	253
TF070103:	27.01.07 – 09.03.07	acquisition campaign:	ERS2-LR: 356	ERS-2-HR	98
TF070901:	04.10.07 – 02.12.07	acquisition campaign:	ERS2-LR: 534	ERS-2-HR	163
TF080103:	20.01.08 – 06.03.08	acquisition campaign:	ERS2-LR: 426	ERS-2-HR	104
TF080901:	07.10.08 – 10.12.08	acquisition campaign:	ERS2-LR: 576	ERS-2-HR	178
TF090103:	23.01.09 – 02.04.09	acquisition campaign:	ERS2-LR: 541	ERS-2-HR	156
TF090901:	31.10.09 – 12.12.09	acquisition campaign:	ERS2-LR: 345	ERS-2-HR	97
ERS2 acquisition campaign (ERS2/ENVISAT Interferometry Campaign Over Antarctica: 16.02.2010 – 27.04.2010)					
TF100104:	17.01.10 – 27.04.10	acquisition campaign:	ERS2-LR: 611	ERS-2-HR	233
TF100502:	08.05.10 – 19.06.10	acquisition campaign:	ERS2-LR: 408	ERS-2-HR	122
Final ERS2 acquisition campaign (OHG continuously operated)					
TF101102:	15.11.10 – 31.12.10	acquisition campaign:	ERS2-LR: 362	ERS-2-HR	127
TF110106:	01.01.11 – 03.07.11	acquisition campaign:	ERS2-LR: 1490	ERS-2-HR	1115
Total:		acquired orbits:	ERS2-LR: 9474	ERS1/2-HR:	8268

ERS1/2 acquisition period from 24.09.1991 to 03.07.2011 with tracked ERS-orbits/data received: **14265**

Other satellites: TSX, TDX,TERRA-&AQUA-MODIS ; NOAA-xx ; JERS; Landsat5;CHAMP;…

18----GROUND STATION COORDINATES
Gen. B. O'Higgins -57.90 -63.31667 0.010 0.
(Filename: TF_sum-ERS-total.doc; last update: 08.Nov.2011)

Data Acquisition TerraSAR-X & TanDEM-X (TSX, TDX)
Overview of TSX & TDX Acquisition Campaigns at GARS O’Higgins (OHG) up to July 2010

name	period	campaign goal	acq.orb. TSX-X	S / TT&C	TDX-X	S/TT&C
TSX launch:	15.06.2007					
TF070901:	04.10.2007 – 02.12.2007	acquisition campaign				
	16.11.2007 – 29.11.2007	X-test; TT&C test	9	3/3		
TF080103:	20.01.2008 – 06.03.2008	acquisition campaign:				
	02.02.2008 – 06.03.2008	X-test; TT&C test	24	32/29		
TF080901:	07.10.2008 – 10.12.2008	acquisition campaign				
	20.10.2008 – 10.12.2008	X-BGM; TT&C test + verify	163	44/18		
TF090103:	23.01.2009 – 02.04.2009	acquisition campaign:				
	26.01.2009 – 02.04.2009	X-BGM, TT&C; installation of new communication system	215	22/80		
TF090901:	31.10.2009 – 12.12.2009	acquisition campaign:				
	15.11.2009 – 12.12.2009	X-BGM; upgrade of all systems for TanDEM-X	94			
TF100105:	16.01.2010 – 11.07.2010	acquisition campaign ERS, TSX, TDX				
	18.01.2010 – 23.05.2010	X-BGM; Improvement, test & verification of systems preparation for TDX launch	~ 230	~ 100		
	24.05.2010 – 11.07.2010	X-BGM;	87	102		
TDX launch:	21.06.2010					
		support of TDX launch			27	98
Total:		acquired orbits:	~ 735	~ 330	27	98

OHG operated continuously from 15.11.2010:
Regular acquisition of TSX and TDX; regular TT&C of TSX and TDX;
Improved subsystems and new enhanced S/W (SMCS) open an opportunity of unattended, remote controlled operation of OHG for X-band data reception of TSX and TDX.

Additional satellite service at OHG: CHAMP, GRACE-1, GRACE-2, …..

Claro (former Telmex) communication antenna 2.4m; up to 512 kb/s

Intelsat communication antenna 4.0 m; 2 Mb/s uplink, 1 Mb/s downlink

Coexistence of nature and technics