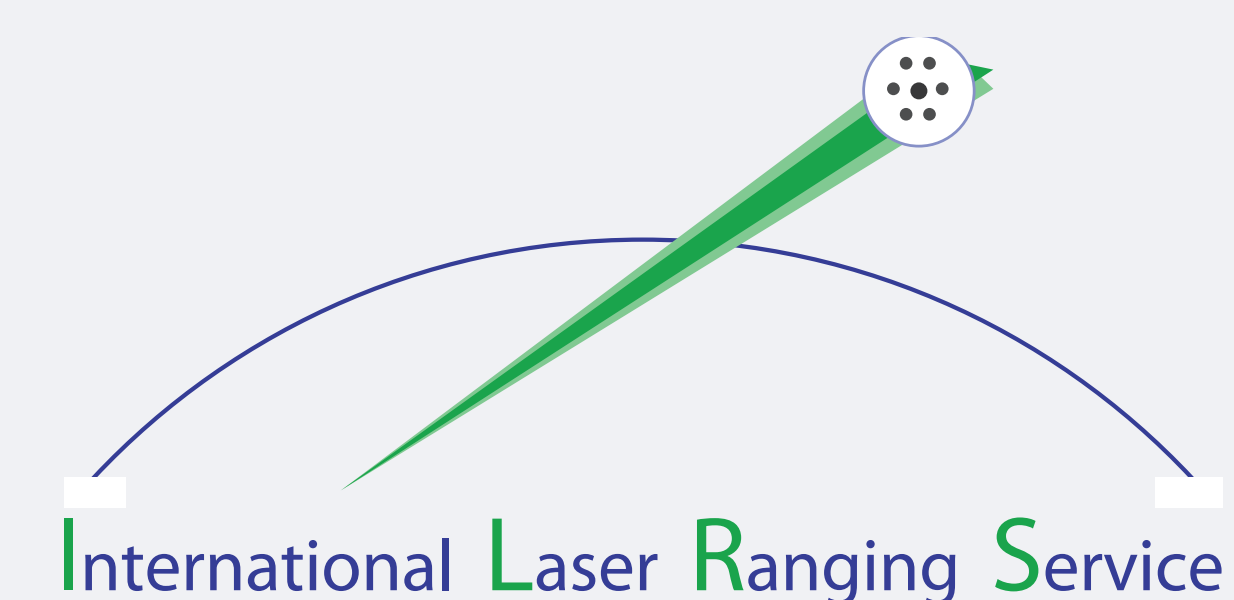# The EUROLAS Data Center (EDC) Status Report 2009-2011

Christian Schwatke and Beate Forberg

Deutsches Geodätisches Forschungsinstitut (DGFI), Munich, Germany

Introduction

Since 1994 the DGFI operates the EUROLAS Data Center (EDC) as ILRS Data Center. The major task is the provision of SLR/LLR data to the ILRS-Community.
The data holding of the EDC contains fullrate data, normal point data, predictions and ILRS-products.

All data sets of the EDC are available on FTP:

ftp://edc.dgfi.badw.de

Fullrate Data

Fullrate data was the first SLR product in the 1970's. At the beginning these data sets were published in the MERIT II format of version 2 and later until today in the extended MERIT II format of version 3. In April 2008, the first data sets were published in the new Consolidated Laser Ranging Format (CRD). The new format consolidates fullrate and normal point data in one format.

Figure 1 shows the development of the data holding at the EDC since January 2009 until April 2011. The peak of the maximum number of fullrate data in the MERIT II as well as in CRD format was reached in September 2009. Since then the number of measurements is decreasing. Especially between January 2011 and April 2011 a decreasing of fullrate data in MERIT-II format can be observed.
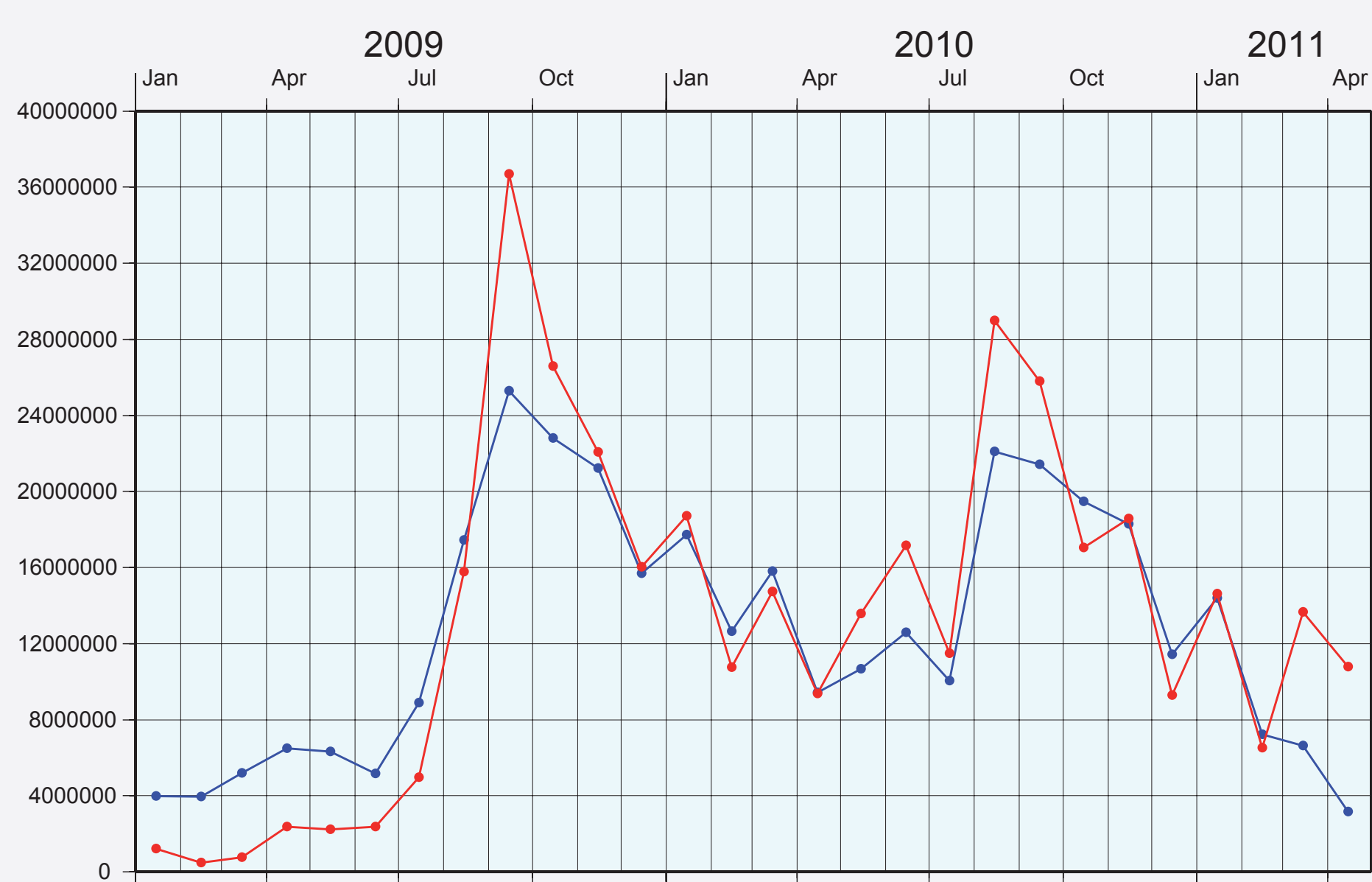

Figure 1: Number of observations every month from January 2009 until April 2011. The blue line shows fullrate data in MERIT-II format and the red shows fullrate data in CRD format

Since January 2009, 37 stations delivered fullrate data in the new CRD format. At this time 44 satellites were observed.
The table 1 shows the number of fullrate observations (CRD) between January 2009 and April 2011.

Satellite	2009	2010	2011	Satellite	2009	2010	2011
Ajisai	23293220	31281960	7895459	Glonass-118	-	192871	113493
Andec	529867	320324	-	Glonass-120	-	270717	68439
Andep	248536	39239	-	Glonass-121	-	62712	80256
Anderra	-	184	-	GOCE	537436	655175	109126
Beacon-C	13867001	16958299	5389107	GPS-35	1536	9883	-
Blits	329321	1257863	419623	GPS-36	49837	236063	28543
Champ	1355900	587874	-	GRACE-A	2698678	2945278	642222
Compass-M1	223658	850749	144884	GRACE-B	1654304	1876661	423799
Cryosat-2	-	3580297	1909360	Jason-1	6435139	9140427	2593785
Envisat	5581180	6304266	2207019	Jason-2	15546769	26108645	4902437
ERS-2	6466639	6942155	2275335	Lageos-1	5875297	16975020	1552868
Etalon-1	579403	1044064	76409	Lageos-2	7065872	9499427	1847160
Etalon-2	398157	1082619	107669	Larets	4137547	4972727	1518240
ETS8	2448	1665	-	LRO	8225360	16789461	-
Giove-A	63253	320237	67952	Oicets	3008	-	-
Giove-B	195337	448951	43488	Proba2	-	318137	736615
Glonass-99	3082	-	-	QZS-1	-	4317	48855
Glonass-100	69182	-	-	Sohla1	1354	-	-
Glonass-102	362810	956692	199916	Starlette	14833720	19628525	6238259
Glonass-109	298584	425809	334659	Stella	6261554	8634490	2612140
Glonass-110	-	106836	128878	Tandem-X	-	619942	364144
Glonass-115	1473379	1907435	139954	Terrasar-X	2687798	2116408	345762

Table 1: Number of observations in fullrate data (CRD) sorted by satellite from January 2009 until April 2011.

Yearly number of fullrate observations (CRD):

2009	2010	2011 (Jan-Apr)
131356166	195474404	45565855

Normal Point Data

Normal point data is the primary product of ILRS stations product replacing on-site sampled data and subsequently fullrate data.
In 2006 the first data sets were published in the new Consolidated Laser Ranging Format (CRD). Since then there is a continously increasing amount of normal points in the new CRD format.
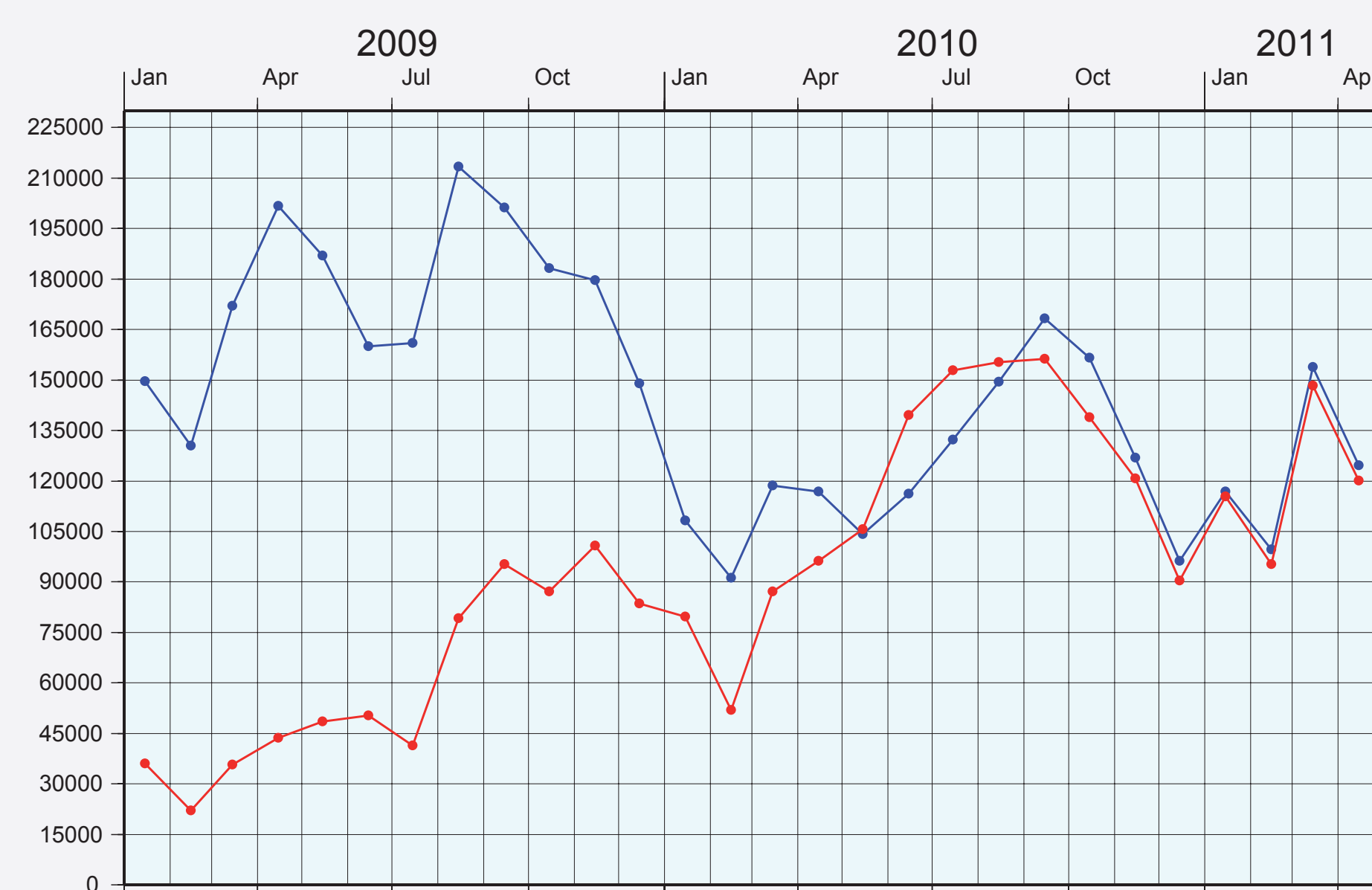The Figure 2 shows the developement of the number of observations since January 2009.

Figure 2: Number of observations every month from January 2009 until April 2011. The blue line shows normal point data in the cstg format and the red line shows normal point data in CRD format.

Since January 2009, 40 stations delivered normal point data in the new CRD format. At this time 71 satellites were observed.
The table 2 shows the number of normal point observations (CRD) between January 2009 and April 2011.

Satellite	2009	2010	2011	Satellite	2009	2010	2011
Ajisai	67451	117680	49429	Glonass-115	4881	8560	2124
Andec	2277	2969	-	Glonass-116	-	136	17
Andep	1325	328	-	Glonass-117	-	170	15
Anderrp	-	10	-	Glonass-118	-	2574	2082
Apollo 11	26	2	-	Glonass-119	-	141	82
Apollo 14	25	2	1	Glonass-120	-	4840	2528
Apollo 15	73	56	24	Glonass-121	-	148	77
Beacon-C	51181	69217	32506	Glonass-122	-	50	69
Blits	2890	15341	7258	Glonass-123	-	66	121
Champ	12164	9001	-	Glonass-124	-	56	78
Compass-M1	2116	7246	2992	Glonass-125	-	-	26
Cryosat-2	-	37708	17913	GOCE	3336	10176	5663
Envisat	34289	59965	26254	GPS-35	595	92	-
ERS-2	38213	64374	24518	GPS-36	1121	2928	660
Etalon-1	4597	7813	2758	GRACE-A	17749	31605	13245
Etalon-2	3434	8079	3121	GRACE-B	16919	30840	12073
ETS8	181	185	-	IceSAT	15576	11444	-
Giove-A	922	2739	1500	Jason-1	75382	141192	58539
Giove-B	2405	3997	1541	Jason-2	88678	185412	65125
Glonass-95	20	204	22	Lageos-1	38622	71198	27005
Glonass-99	384	-	-	Lageos-2	36806	63376	25304
Glonass-100	579	35	83	Larets	14191	24785	10839
Glonass-101	7	128	37	LRO	78605	191861	-
Glonass-102	4100	7825	3268	Luna 17	-	1	-
Glonass-103	15	163	74	Luna 21	6	-	-
Glonass-104	5	155	-	Oicets	245	-	-
Glonass-105	10	181	80	Proba2	-	2388	4634
Glonass-106	11	201	70	QZS-1	-	251	647
Glonass-107	11	168	100	Reflector	-	253	386
Glonass-108	18	86	33	Sohla1	605	-	-
Glonass-109	3562	3960	3773	Starlette	43005	69340	29190
Glonass-110	13	1982	1659	Stella	20066	34300	14361
Glonass-111	9	183	91	Tandem-X	-	20813	12472
Glonass-112	-	27	-	Terrasar-X	34918	43428	12472
Glonass-113	13	177	22	Westpac	-	12	15
Glonass-114	13	191	39				

Table 2: Number of observations in Normal Point data (CRD) sorted by satellite from January 2009 until April 2011.

Yearly number of normal point observations (CPF):

2009	2010	2011 (Jan-Apr)
723645	1374812	479015

Mailing-Lists

Within the ILRS-Community the EDC maintains three mailing lists for information exchange.

SLR-Mail (http://slrmail.dgfi.badw.de)
2009: *85 messages*
2010: *116 messages*
2011: *47 messages*
SLR-Report (http://slreport.dgfi.badw.de)
2009: *1344 reports*
2010: *1482 reports*
2011: *534 reports*
SLR-Urgent (http://urgent.dgfi.badw.de)

Predictions

Since June 30, 2006 the Consolidated Prediction Format (CPF) is the official ILRS format for satellite predictions.
Elder predictions in the Tuned Inter-Range Vectors (TIRV) format were detached by the new CPF.
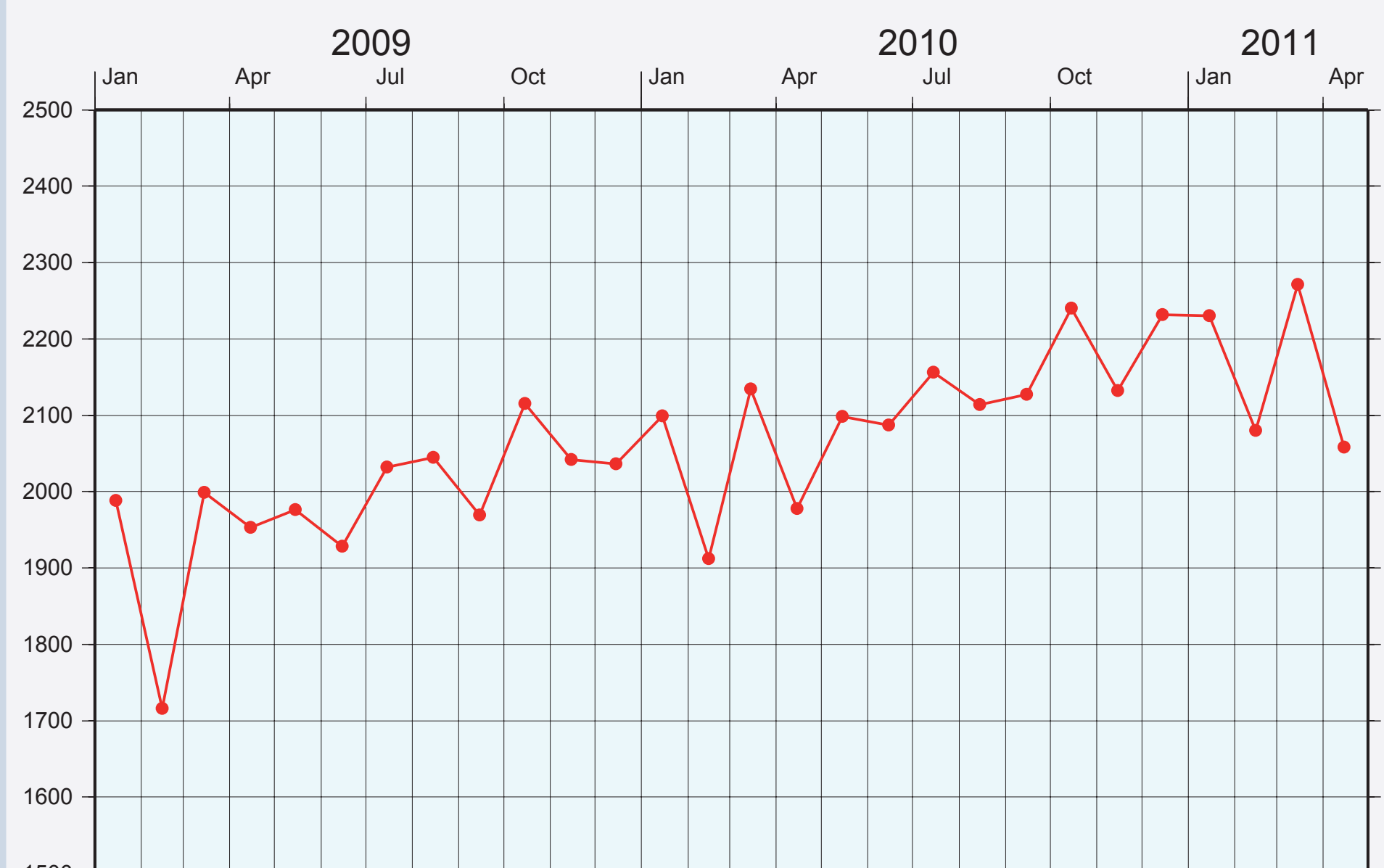

Figure 3: Number of predictions (CPF) every month from January 2009 and April 2011.

In the period between January 2009 and April 2011, predictions (CPF) of 44 satellites were computed by 12 providers.

Satellite	2009	2010	2011	Satellite	2009	2010	2011
Ajisai	1090	1082	357	Glonass-118	-	230	220
Andec	202	217	-	Glonass-120	-	517	220
Andep	153	85	-	GOCE	481	877	330
Apollo 11	359	361	120	GPS-35	316	70	-
Apollo 14	359	361	120	GPS-36	709	726	234
Apollo 15	359	361	120	GRACE-A	723	735	269
Beacon-C	726	718	237	GRACE-B	726	720	268
Blits	160	600	183	IceSAT	1	14	-
Champ	1452	1139	-	Jason-1	1050	1052	355
Compass-M1	460	453	128	Jason-2	1093	1087	357
Cryosat-2	-	476	219	Lageos-1	1091	1079	355
Envisat	995	1000	307	Lageos-2	1091	1091	357
ERS-2	994	1048	323	Larets	962	963	314
Etalon-1	727	726	236	Luna 17	359	361	120
Etalon-2	725	727	238	Luna 21	359	361	120
ETS8	26	15	-	Luncenter	359	361	120
Giove-A	504	567	204	Oicets	31	-	-
Giove-B	711	691	225	Proba2	-	32	36
Glonass-99	179	-	-	QZS-1	-	17	114
Glonass-100	152	-	-	Sohla1	16	-	-
Glonass-102	709	717	220	Starlette	727	727	237
Glonass-109	707	421	220	Stella	709	465	239
Glonass-110	-	229	220	Tandem-X	-	381	241
Glonass-115	526	721	220	Terrasar-X	720	728	241

Table 3: Number of predictions (CPF) sorted by satellite from January 2009 until April 2011.

Yearly predictions (CPF):

2009	2010	2011 (Jan-Apr)
23799	25309	8644

SLR-Products

The EDC provides also products from analysis and combination centers.

● **Daily and weekly position (POS) and earth orientation parameters (EOP)**

	2009	2010	2011 (Jan-Apr)
ASI	52	51	18
BKG	49	50	18
DGFI	52	28	-
ESA	-	14	17
GA	52	50	10
GFZ	51	52	18
GRGS	51	50	16
JCET	52	52	18
ILRS-A	52	52	17
ILRS-B	51	50	18

Table 4: Number of weeks per year where positions and earth orientation parameters (EOP) were delivered

● **Orbits**

	2009	2010	2011 (Jan-Apr)
ASI	204	152	-
BKG	-	86	44
DGFI	199	112	-
GA	248	196	28
GFZ	50	20	-
GRGS	53	104	15

Table 5: Number of orbit data sets per year.

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