



The ILRS Official Products

Current and Future

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Outline

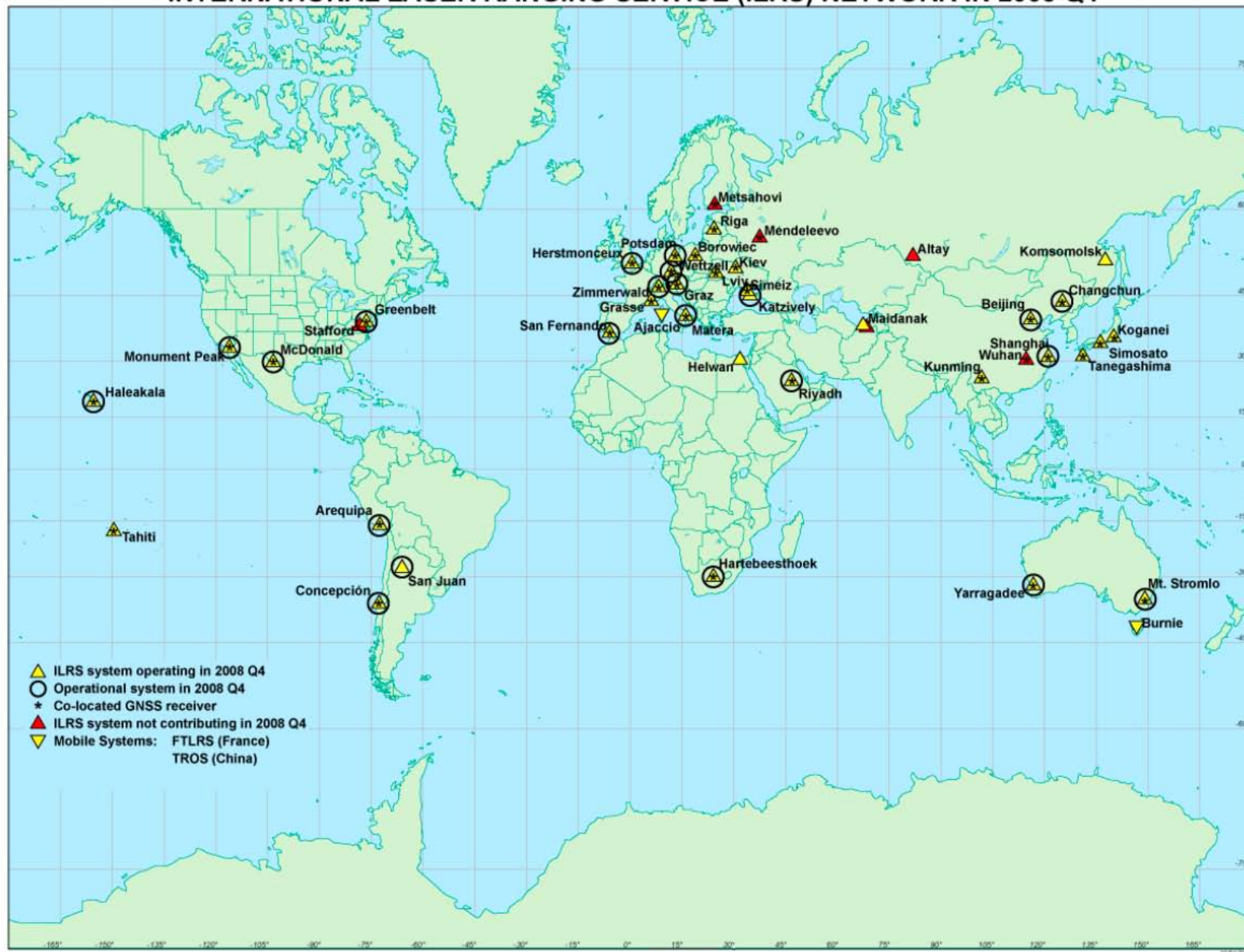
- The ILRS Service
- The ILRS Network and Operations
- The ILRS Analysis Working Group (AWG)
- The Current Official AWG Products
- Products in Pilot Project phase
- Future Products

The ILRS:



- founded in 1998
- stimulates technology development
- coordinates missions, tracking, archival, analysis
- **Analysis Working Group: quality control, analysis standards, formats, TRF products, 8 active AC and 4 candidate AC**
- effective SLR-data period : from 1983 onwards
- **<http://ilrs.gsfc.nasa.gov>**

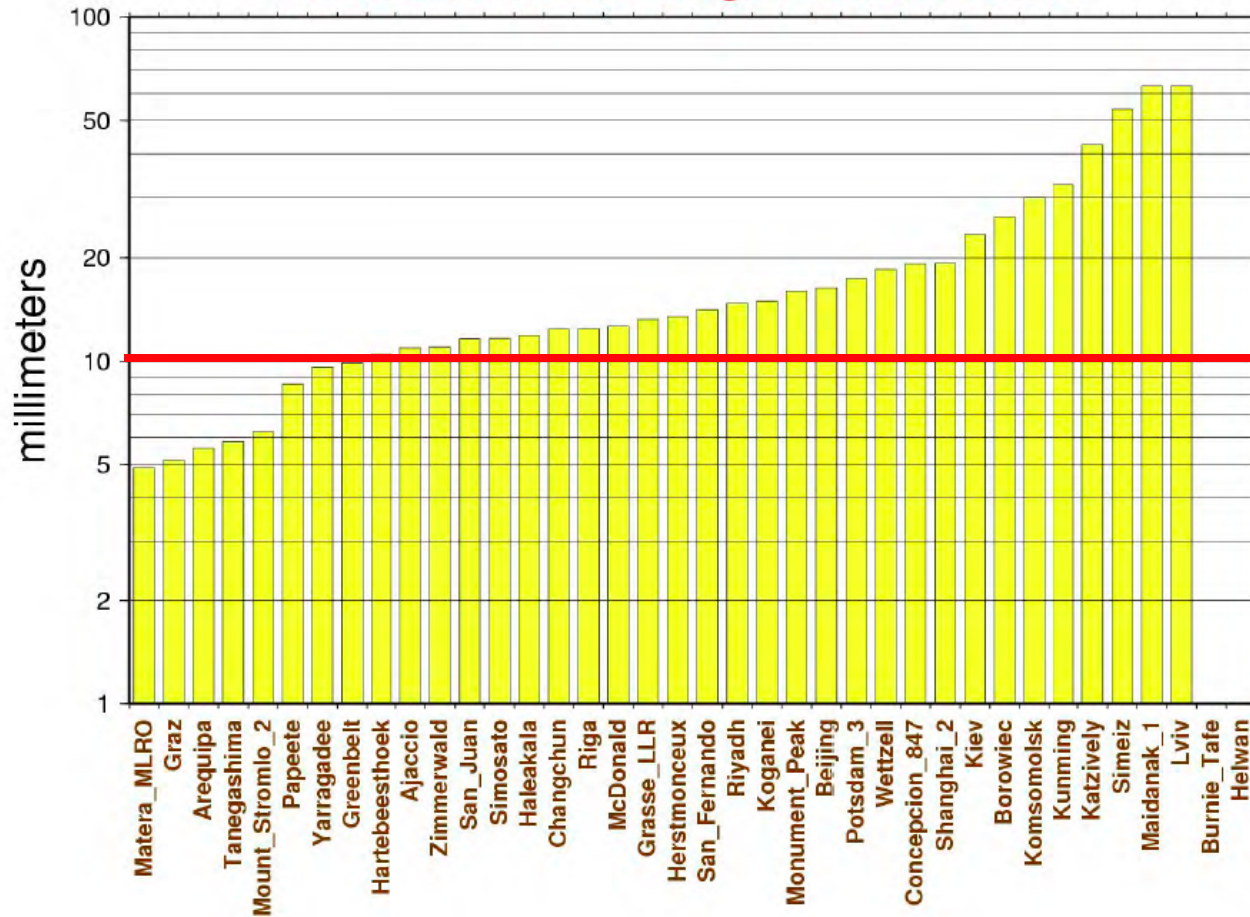
INTERNATIONAL LASER RANGING SERVICE (ILRS) NETWORK IN 2008 Q4



Station Performance

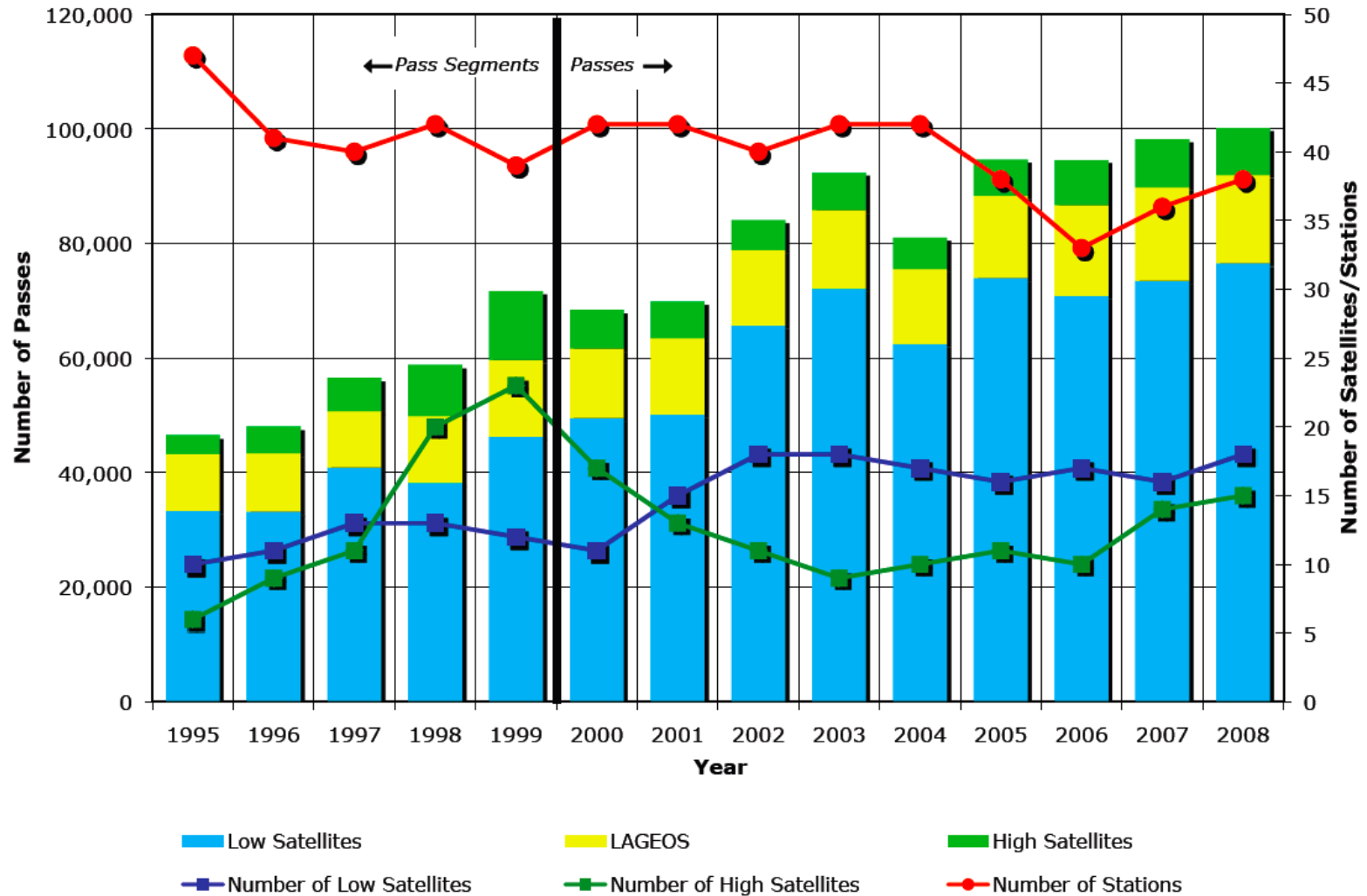
LAGEOS RMS (2008Q4)

LAGEOS RMS
from October 1, 2008 through December 31, 2008



20090206

Annual Data Yield



The ILRS Analysis & Combination Centers



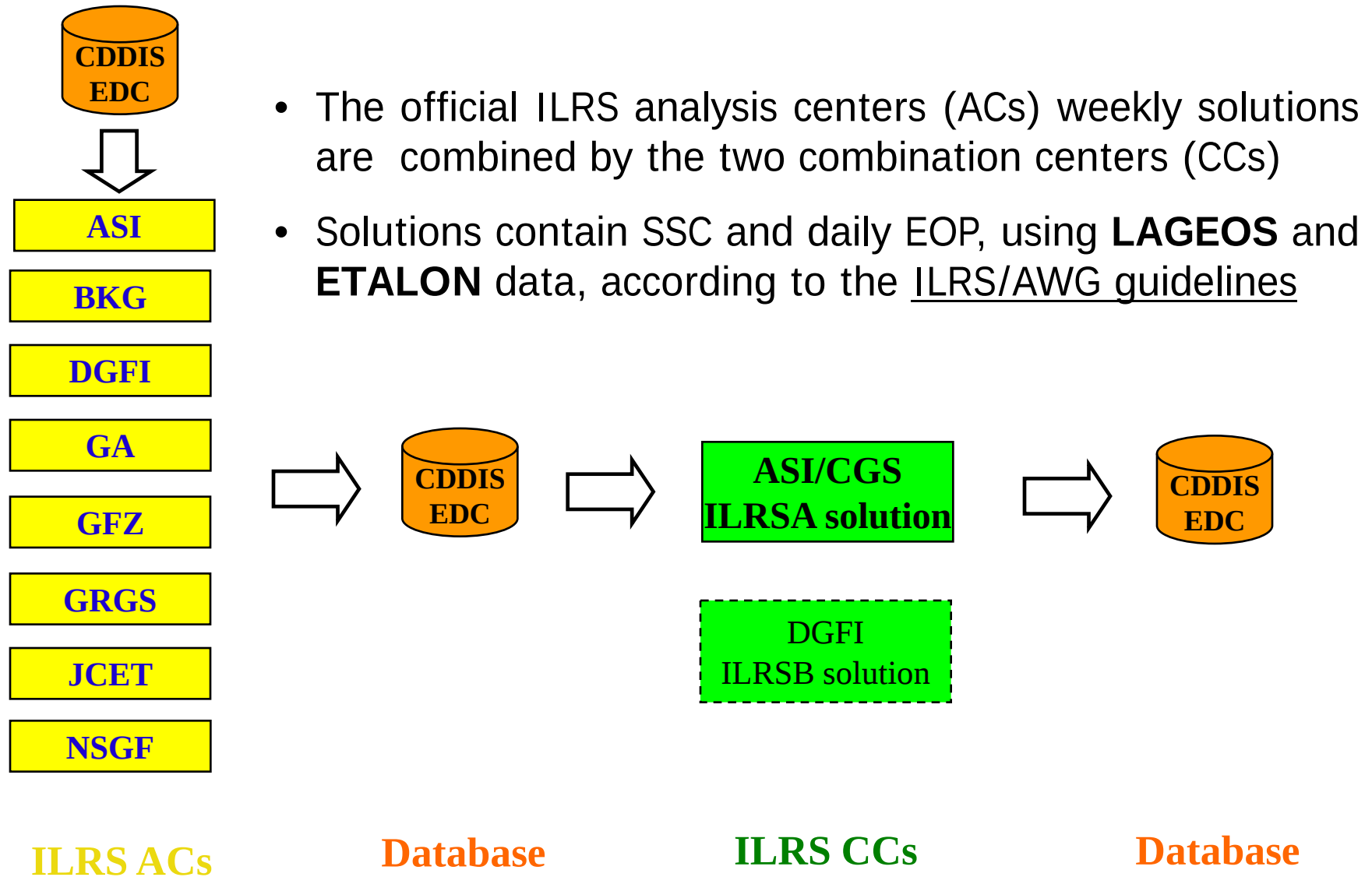
Current AWG Products

- ILRS generates solutions based on satellite laser range observations for:
 - **weekly position and EOP** product (SINEX)
 - o definition of the center-of-mass of the Earth system (unique contribution);
 - o determines the scale of the TRF(along with VLBI);
 - **daily position and EOP** products to support primarily EOP forecasting at NEOS;
 - **QL data analysis** monitoring station performance

ILRS “positioning + earth orientation” products

- first steps in 2000
- first used LAGEOS-1/2, later added Etalon-1/2 (since 2002)
- daily EOPs, weekly station coordinates (**3^d EOP 1983 - 1992**)
- weekly solutions since January 1993, (**biweekly 1983 - 1992**)
- official ILRS products distributed since June 2004
- current ACs: ***ASI, BKG, DGFI, GA, GFZ, GRGS, JCET, NSGF***
- combination centers: ASI (ILRSA, primary) and DGFI (ILRSB, backup)
- combination solutions available on Wednesday of each week
- first analysis of SLR data from 1983 onwards for ITRF2008
- **“sliding” weekly solutions available DAILY for EOP & TRF**

The ILRS AWG processing chain



Parameters:

1-day EOPs (x_p , y_p , LOD), weekly station coordinates

***a priori*: IERS (EOPs), SLRF2005 (based on ITRF2005S)**

Individual solutions:

- **loosely constrained**

Combination solutions (loosely constrained):

- **ASI (ILRSA primary)**
- **DGFI (ILRSB backup)**

Contributions to the reanalysis for ITRF2008:

1983 - present:

- **Six (6) AC:**
 - **ASI, DGFI, GA, GFZ, JCET, NSGF**

1993 - present:

- **Seven (7) AC:**
 - **ASI, DGFI, GA, GFZ, GRGS, JCET, NSGF**

RMS values for differences between Helmert parameters w.r.t. ITRF2005S (SLRF2005) of successive weekly ILRS solutions (January 1993 - December 2008)

	AC	Tx [mm]	Ty [mm]	Tz [mm]	Sc [mm]
<i>Individual</i>	ASI	5	5	10	5
	DGFI	8	6	13	5
	GA	7	6	11	5
	GFZ	6	5	11	5
	GRGS	7	7	11	7
	JCET	5	5	11	5
	NSGF	11	11	23	9
<i>Combination</i>	ILRS-A	4	4	9	4

Future AWG Products

- Pilot Project for Orbit product (SP3c);
 - several ACs contributing now (more in 2010);
 - limited CCs attempts to produce combined Orbital product (mechanism in place);
- Daily position and EOP product run as a Pilot Project pending NEOS testing;
- Plans for low degree harmonics in weekly product – Pilot Project in 2010
 - geocenter to be included