Hafelekar GPS Permanent Station Seasonal Monitoring

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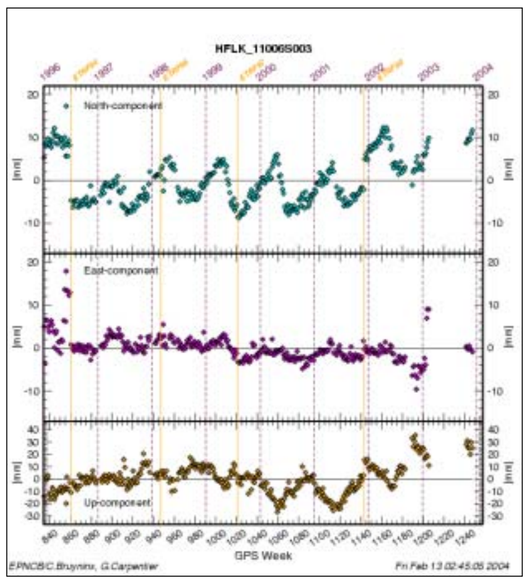
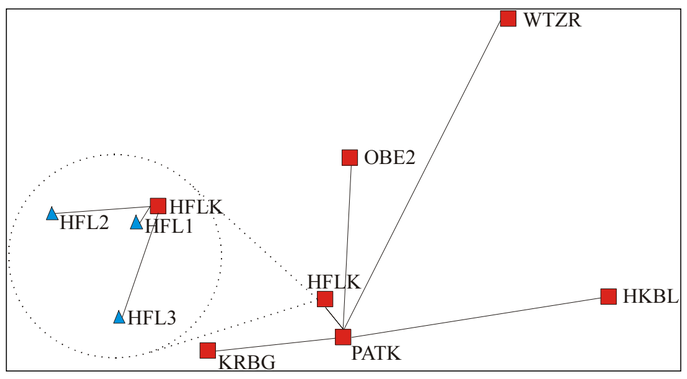
Problem Definition

As it can be seen in the ETRS89 time series from EUREF (http//:www.epncb.oma.be) computations (Figure 1), since its establishment in 1996, the Hafelekar (HFLK) IGS permanent GPS station shows a strong seasonal variation of its coordinates, in the order of 2 cm in the North component.



Four GPS Campaigns to Study the Area

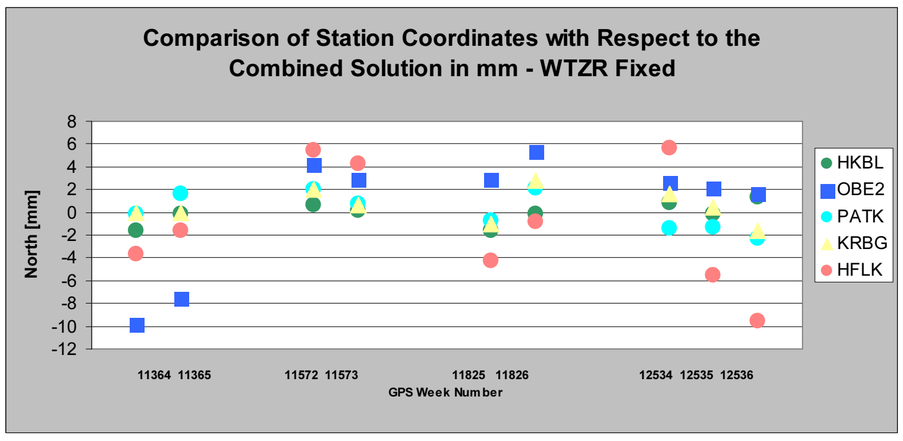
Three GPS local stations have been established in the area and observed four times between 2001 – 2004, at different seasons.



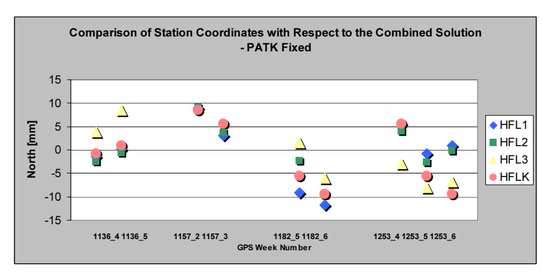
CAMPAIGN	DATE
1	18-19.10.2001
2	12-13.03.2002
3	06-07.09.2002
4	15-17.01.2004

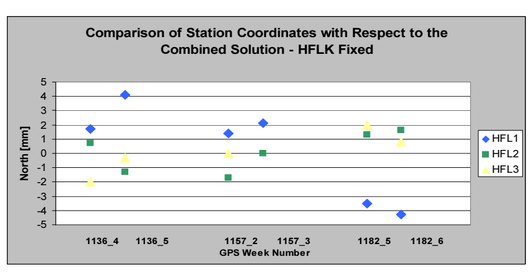
The data were computed in three networks, two locals and one regional, with the Bernese 4.2 software, using the addition of the daily normal equations.

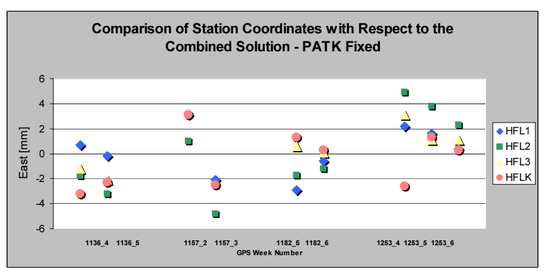
Differences in the Regional Network

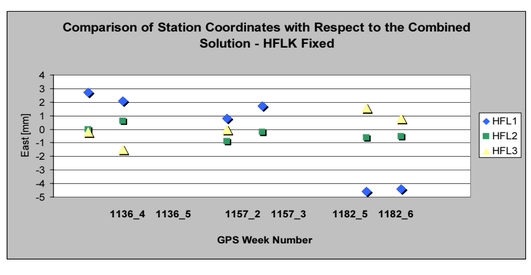


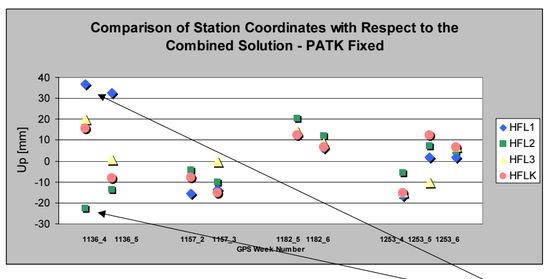
Differences in the Local Network

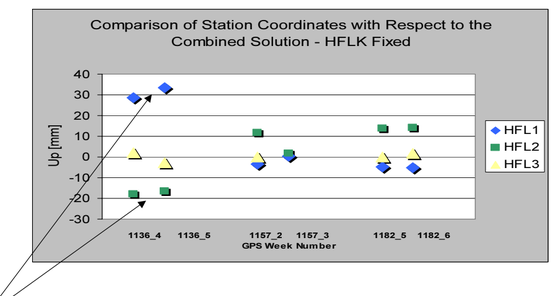




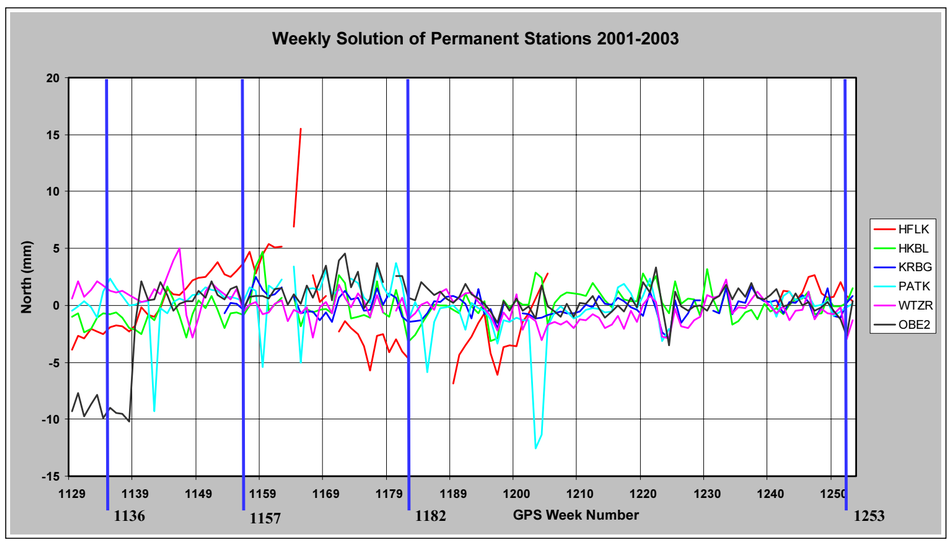








Antenna Height ???



Time series of the stations within the regional network.

Conclusions

- Local network installed
- Not all seasons observed
- Local points seem to move with HFLK
- Is the whole mountain moving?
- Supposed source water content variation
- Investigation are to be prolonged in time and expanded in space

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