

HMK – Swedish handbook in surveying and mapping

A Alfredsson, J Sunna, C-G Persson


**TS07B - Standards and Recommended Practices for Positioning and Measurement,
Paper no 7072**

**FIG Congress 2014
Engaging the Challenges, Enhancing the Relevance
Kuala Lumpur, Malaysia, 16 – 21 June 2014**

LANTMÄTERIET


Outline

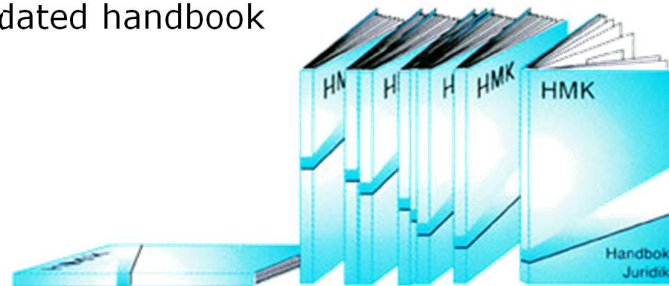
- Background
- The HMK project in general
- The geodetic part of HMK
- Time plan

LANTMÄTERIET


Background

Lantmäteriet, the Swedish mapping, cadastral and land registration authority, has a long tradition of supporting the Swedish surveying and mapping community.

- 9 handbooks were published in the mid-90s
- The books were widely spread, and some parts are still used.
- New techniques and new working methods have indeed increased the demands for an updated handbook



LANTMÄTERIET

The HMK project

HMK Introduction

- An overview of the different documents
- A document describing geodata quality
- Dictionary and a list of used abbreviations

HMK Geodata capture

- Aerial photography
- Photogrammetric surveying
- Laser scanning
- Orthophoto
- Digital elevation models.

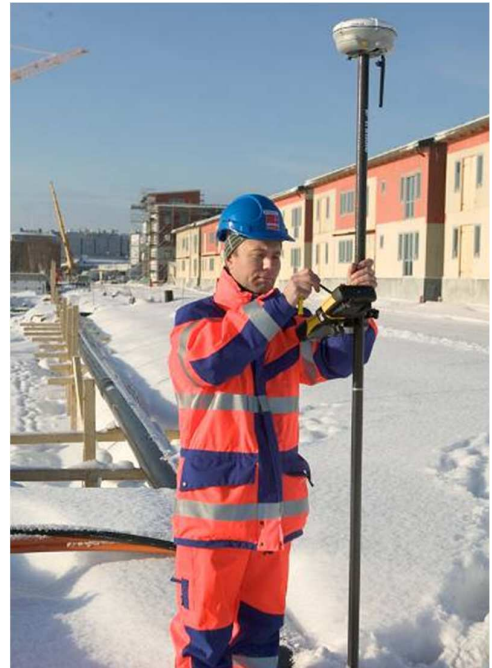
HMK Geodesy

- Knowledge base
- Guidelines
- Support to choose method

LANTMÄTERIET

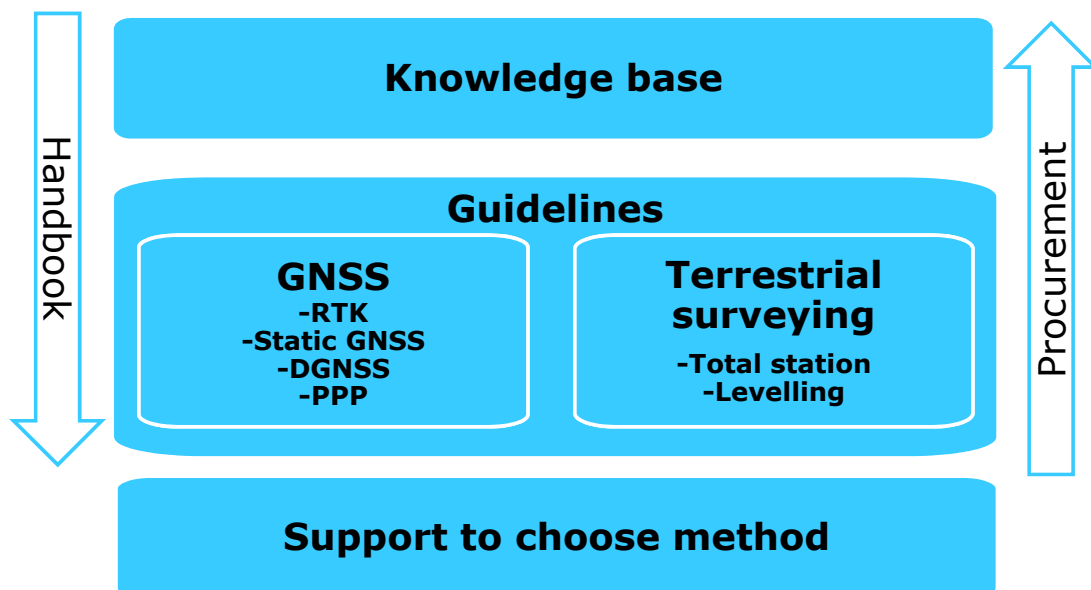
The aim of HMK

- Contribute to an efficient and standardized handling of surveying and mapping issues in Sweden.
- Be used for both educational purposes and in procurement processes.
- Cover the needs for both a description of the Swedish geodetic infrastructure and actual surveying recommendations.
- Meet the demands from the surveying community in Sweden with recommendations on how geodetic surveying shall be performed and what parameters that shall be reflected on.



LANTMÄTERIET

Structure of the geodetic part



LANTMÄTERIET

Knowledge base

- Information concerning the geodetic infrastructure in Sweden
 - reference systems and frames
 - map projections
 - geodetic surveying in general
- Can be used in an educational purpose.

Guidelines

- Actual guidelines and recommendations for different surveying techniques.
- The guideline section will be divided into at least two sections

GNSS

- RTK
- Static GNSS
- DGNSS*
- PPP*

Terrestrial techniques

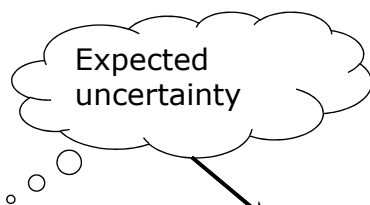
- Total station
- Levelling
- Combined terrestrial/GNSS*
- Terrestrial laserscanning*

*) Will be included in a future version.

Different levels of methods

- The guidelines for the survey techniques will be described with different levels of expected uncertainty.
- The method levels will be described by parameters that can be adjusted by the user to reach different levels of expected uncertainty.
- The recommendations in the RTK section for example are based on the parameters:
 - Length of sessions
 - Time separation between sessions
 - Control procedures

Analysis of survey data collected in the field will set the numeric values of the recommendations.



Support to choose method

Suitable techniques

Conditions

Possible access to benchmarks, Network-RTK, communication etc.

Method adjustment

Recommended adjustments in the method due to environment etc.

Recommended technique and method.

- Tables with specified parameters to all described methods.
- Expected uncertainty is the initial parameter.
- References to the guidelines.
- Can be used in a procurement process.

Publishing and time plan

- All documents will be published in digital form on our website www.lantmateriet.se/hmk

Published in 2013:

HMK-Introduction
HMK-Dictionary
HMK-Aerial photography
HMK-Reference systems and geodesy*

*) To be replaced in 2014

Planned in 2014:

HMK-Geodata quality
HMK-Laser scanning
HMK-Orthophoto
HMK-Photogrammetric surveying
HMK-Geodesy

Update existing documents.

Planned in 2015:

HMK-Metadata
HMK-Cartography

Update existing documents.

LANTMÄTERIET



Challenges

- To meet the user demands from the surveying community.
- Get the users to actually use the handbook.
- Perform relevant tests in the field to set the numeric recommendations in the handbook.
- Time, the plan is to publish in the end of 2014.



LANTMÄTERIET

