FREQUENTLY ASKED QUESTIONS ABOUT HEPOS

General questions about HEPOS and the services provided

What is HEPOS?
HEPOS (HEllenic POsitioning System) is a system that provides real-time positioning services using GPS (the Global Positioning System). HEPOS has been designed and developed by KTIMATOLOGIO S.A., which also operates the system. The system consists of 98 permanent GPS reference stations, distributed all over Greece. The observations of these stations are transferred to the system's Control Center, for processing, archiving and generation of the data to be sent to the users for positioning in real-time or for post-processing.

What kind of positioning services does HEPOS provide?
HEPOS provides two kinds of services: Real-time services, where the user's position is determined at the time of the measurement (RTK and DGPS techniques) and post-processing services, where the user's position is determined by post-processing the measurements in the office.

Which are the main advantages of using HEPOS?
HEPOS, with its 98 reference stations covering the whole of the Greek Region, simplifies the precise positioning, allowing the user to achieve geodetic accuracy by using only one geodetic GPS receiver, instead of a pair of receivers. At the same time HEPOS offers, in the major part of the country, network-based GPS techniques. The post-processing services of HEPOS can be used not only by user equipped with dual-frequency receivers, but also by owners of relatively inexpensive single-frequency receivers. HEPOS provides high precision positioning throughout the country. In this way, HEPOS is realizing a highly homogeneous nation-wide geodetic reference frame.

Questions about accessing HEPOS

Who can use HEPOS?
HEPOS has been developed by KTIMATOLOGIO S.A. to facilitate the establishment of the National Cadastre. At the same time, HEPOS can also be used by other public authorities and private companies or professionals.

Since when is HEPOS available?
HEPOS is available to users since February 2008. In the beginning, it will be exclusively provided to Contractors of Projects of KTIMATOLOGIO S.A. The availability to other users will be announced in the website of the system (www.hepos.gr).

How can I gain access to HEPOS?
For gaining access to HEPOS, someone has to register, following the "Registration procedure" available at the website of HEPOS (www.hepos.gr).

What is the cost of the HEPOS services?
A registration fee of 300,00 € (plus VAT) will be charged for every access code that the user would like to have for each service. More details can be found selecting "Registration" at the homepage of the HEPOS website (www.hepos.gr). During 2008, detailed tariffs will be announced.

Questions about the required equipment for using HEPOS

What is the required equipment for using HEPOS?
The required equipment depends on the service someone wants to use.
A user of the HEPOS Real-time services needs an RTK GPS-receiver or a receiver capable of using DGPS corrections supplied by a network of reference stations. In addition, a GSM- or GPRS-modem is required for connecting to the Control Center of HEPOS. This modem can be an external device (e.g. the user's mobile phone) or a device incorporated in the RTK-receiver.
A user of the post-processing services needs an appropriate processing software capable of importing RINEX files, a functionality that, practically, all modern software packages offer.

What type of receivers can be used with HEPOS?
For RTK applications, all modern RTK-receivers are totally compatible with the HEPOS operation, because they are designed for usage with RTK-networks like HEPOS. In most cases, older receivers can be used after upgrading their firmware.
For using the post-processing services, there is practically no limitation concerning the type of user's geodetic receiver.
In case of any limitation, this is caused by the certain capabilities of a receiver and – in no case – has to do with the brand of the receiver. HEPOS can be used with receivers of all manufacturers.

With what cellular connection types can HEPOS be used?
For real-time applications, a user may use any connection of any provider. The only condition is the activation of services that allow using a GSM modem, or/and GRPS. Especially for GSM modems, the dissimulation of the calling number mustn't be activated because access is granted after the calling number is authenticated in the Control Center.

Questions on technical issues

What does the term "Network-Based GPS techniques" mean?
The Network-Based GPS techniques have been developed in the last decade and allow relative positioning by processing data coming not only from one reference station (as the classic GPS relative positioning techniques), but also from more stations belonging to a network. HEPOS supports all the existing Network-Based GPS techniques.

Which are the "Network-Based GPS techniques"?
The existing Network-Based GPS techniques are the VRS (Virtual Reference Station), the FKP (Flächenkorrekturparameter) and the MAC (Master Auxiliary Concept) techniques. The FKP and MAC techniques can be used only for RTK positioning. The VRS technique can be used both for RTK and post-processing. When using the VRS technique, the Control Center generates reference station data at any position within the area of network-solution of HEPOS, by using data coming from real reference stations. The user receives and uses these data, exactly in the same way as if they had come from a real reference station, installed on the same position.

What is the RINEX format?

The RINEX (Receiver INdependent Exchange) format is an ASCII file format used for storing GPS observations. This format is supported by all receiver- and software-manufacturers. Today, all manufacturers ensure that observation from their GPS receivers can be exported in RINEX format and RINEX data can be imported into their processing software packages.

In what Geodetic Reference System (GRS) can I determine coordinates by using HEPOS?

By using HEPOS, coordinates in any GRS system can be determined, provided that transformation parameters between the HEPOS reference system (ETRS '89) and the GRS of interest, are available. For the projects of KTIMATOLOGIO S.A. that are conducted in ETRF, HEPOS can be used without need for transformations. For coordinate determination in the National GRS (called GGRS'87 or EGSA'87) KTIMATOLOGIO S.A. will publish transformation procedures. These procedures will be available through the link "Downloads" at the homepage of the HEPOS website (www.hepos.gr)

What positioning accuracy can be achieved by using HEPOS?

The achieved accuracy depends on the service used. Using HEPOS RTK services, an accuracy level in the order of few centimeters can be obtained. Using HEPOS DGPS services, sub-meter accuracy (often at the level of 0,30 m) can be achieved, depending on the user's equipment. Using HEPOS post-processing services the highest precision - at the level of few millimeters - can be achieved, for long observation time.

Under what conditions can I use HEPOS in the field?

For using HEPOS services in the field, all known guidelines for GPS-positioning are in effect. That means, the user must ensure good satellite visibility, low multipath, avoid electromagnetic interferences etc. In addition, to use Real-time services, GPRS or GSM coverage is required.