

# Satellites position new electricity supply in Vienna



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**AT WORK**

*"It is possible to generate positions in real-time"*

*"We need to describe the whole area at centimeter level"*

In 2001 the project WEP (Wienstrom Echtzeit-Positionierung) of Vienna, Austria energy supplier Wienstrom started. After a pilot phase, WEP has been functional since 2003. "Our positioning system is based on satellite navigation technology. Both the American GPS satellites and Russian GLONASS satellites are used. The WEP-system offers positioning at centimeter level", Christian Klug, project manager of Wienstrom, states.

Topcon GPS+ receivers are used in this WEP-network to survey the extension of a new 380 kV electricity supply. "In order to extend the electricity supply for North Vienna twelve detours of a total length of 870m and ten underground junctions are constructed. However, first the whole area of planned cable design, detours and junctions must be described with an accuracy of maximum three centimeters."

"The WEP network is used to complete cable documents, check environment data, surveys, tracing, stake out and machine navigation. To cover the whole area, four reference stations were needed. All reference stations are set up and maintained by Wienstrom. The satellite signals are received at all WEP reference stations using Topcon GPS+ receivers. These reference stations are connected to each other, creating a GPS+ network. With this network any position within the area has the same homogenous accuracy."

"The network calculates and modulates corrections of signal errors created while traveling through the atmosphere. These correction data are transmitted from the WEP server to the network area using GSM communication. With the reception at the rover of correction data, it is possible to generate a position in real-time with centimeter accuracy. The rover consists of an antenna, a receiver, a field computer and GSM communication. On the field computer in real-time, the actual position is seen. Using both GPS and GLONASS increases stability, availability and accuracy of WEP."

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