

Abstract Sheet (Bibliographical Entries)

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Katsougiannopoulos, S.

Pikridas, Ch. (A.U.Th., Sch. of Rul. & Surv. Eng., Dept. of Geodesy & Surveying)

Προσδιορισμός Συνάρτησης Απεικόνισης για τον Υπολογισμό της Τροποσφαιρικής Υστέρησης στα Σήματα GPS με Χρήση Δεδομένων Ραδιοβόλισης. Εφαρμογή στον Ελλαδικό Χώρο (Mapping Function Determination for Computing the Tropospheric Delay in GPS Signals Using Radiosonde Data. Application to the Hellenic Region)

Tech. Chron. Sci J.T.C.G., I, Jan. – Apr. 2008, vol. 28, no 1, pp. 9-20, tab. 12, 25 ref.

The main goal of the present paper is the determination of a new mapping function in order to better handle the tropospheric effect on GPS signals, especially for the Hellenic region. In space-to-earth geodetic techniques the troposphere affects the radio wave propagation. In order to estimate the total non-zenith path delay various mapping functions have been proposed to scale the zenith delay to other elevations. The computational method is based on radiosonde balloon measurements selected from seven stations inside and around Greece covering a two-year time span. The effectiveness of the new function is tested against Niell and Ifadis mapping functions. A comparison of the results is presented and finally some useful conclusions are drawn.

(Authors)

K-W: Tropospheric Delay, Mapping Function, GPS Measurements Reduction

Sophianopoulos, S. D. (D.U.Th., Dept. of Civil Eng.)

Προς την Κατεύθυνση Επιτυχούς Σχεδιασμού Κατασκευών από Δομικό Χάλυβα (Towards Achieving the Most Successful Designs in Structural Steel)

Tech. Chron. Sci J.T.C.G., I, Jan. – Apr. 2008, vol. 28, no 1, pp. 21-29, tab. , 4 ref.

The most critical parameters affecting the goal of achieving successful design in structural steel are discussed in the present work. More specifically, the role of accounting for constructability, teamwork, and the use of engineering judgment are enhanced, in conjunction with well accepted guidelines and suggestions for achieving the above aim, such as always looking at the big picture. The effect of not correctly considering computer-aided design, as well as the actions leading to a reduction in human errors, are dealt with, while some distinct characteristics of the importance of properly instructing young engineers towards the anticipated goal are comprehensively presented.

(Author)

K-W: Steel Structures, Design, Analysis

Arvanitidis, A. P.

Skouras, B. D.

Η Θέση στον Αστικό Χώρο και οι Αξίες Ακινήτων: Το Παράδειγμα της Κατοικίας στην Πόλη του Βόλου (Urban Location and Housing Values: Exploring the Links in the City of Volos)

Tech. Chron. Sci J.T.C.G., I, Jan. – Apr. 2008, vol. 28, no 1, pp. 31-41, tab. 8 , 30 ref.

The majority of property valuation methods underestimate the role location plays in the development of the open market value of property. The current paper comes to rectify this deficiency by developing a methodology which enables each location in a city to be attached to a value coefficient according to its distance from the city centres (CBD and subcentres). This methodology can be used complementarily to the already established valuation methods in order to check the accuracy and to improve the quality of provided valuations. The proposed methodology was explored in the city of Volos, utilising data from newly constructed houses that came on to the market during the period 1999 to 2004.

(Authors)

K-W: Urban Area, Real Estate Value, Valuation, Location

Zalachori, I

Koutsoyiannis, D., Andreadakis, A. (NTUA)

Παρασιτικές Εισροές σε Δίκτυο Ακαθάρτων: Αποτίμηση του Προβλήματος στην Ελλάδα (Infiltration and Inflow in Sewer Systems: Identification & Quantification in Greece)

Tech. Chron. Sci J.T.C.G., I, Jan. – Apr. 2008, vol. 28, no 1, pp. 43-51, tab. , 25 ref.

Infiltration and inflow (I/I) are known to be among two of the major problems in sewer systems. According to literature reviews, infiltration and inflow are often estimated as 100% of sewage flow, causing major malfunction both to the system and the wastewater treatment plan. In some countries proper regulation has been applied; however, in others research is still in progress. Since 1970, United States have developed a detailed legislation for the identification and rehabilitation of the problem, while in Europe various research programs are currently ongoing. In this study, two pilot projects were conducted in Greece, in the cities of Ioannina and Karditsa. In the first phase of the project, infiltration and inflow conditions were identified for each city. A model was then developed for the quantification of I/I. Last, the reliability of the model was validated and the components of sewage were analyzed. The general conclusion is that the quantity of I/I is significant, exceeding the typical assumptions in the design studies of sewer networks in Greece.

(Authors)

K-W: Sewerage Networks, Infiltration, Inflow, Wastewater

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Fougias, G. E.

Χρήση Μαθηματικού Μοντέλου για τον Έλεγχο της Υγειονομικής Διαστασιολόγησης του ΚΕΛ Κορωπίου-Παιανίας (Use of a Mathematical Model for the Validation of the Koropi-Paiania WWTP Process Design)

Tech. Chron. Sci J.T.C.G., I, Jan. – Apr., 2008, vol. 28, no 1, pp. 53-68, tab. , 10 ref.

In recent years, the use of mathematical models has been a valuable tool for the design of activated sludge systems in accordance with the required treatment standards -, as these are defined in the European Union by the Directive 91/271 and the relevant national

legislation. In the present study, the ASM1 model of IWA was implemented in order to validate the proposed design for the new Koropi-Paiania WWTP for a region east of Athens, in the Eastern Attiki Prefecture. The use of ASM1 had a twofold objective: a) to examine, if selected volumes and operational parameters of the proposed activated sludge scheme as defined in the Preliminary Design Study satisfy the required treated effluent standards and, b) to determine the oxygen demand distribution along the aerobic section of each activated sludge bioreactor, which is of crucial importance and cannot be determined with conventional design calculations.

(Author)

K-W: Wastewater Treatment Plants (WWTP), Mathematical Models for WWTP Design, Activated Sludge, Biological Nutrient Removal