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Pyrgidis, Ch. (A.U.Th., Dept. of Civil Engineering)

Αναλυτική Μέθοδος Προσδιορισμού του Μέγιστου Φορτίου Τροχού επί της Σιδηροδρομικής Γραμμής (Analytical Method for Determining the Maximum Wheel Load)

Tech. Chron. Sci J.T.C.G., I, Jan. – Apr. 2010, vol. 1, no 1, pp.13-32, tab. 11, 18 ref.

In this paper, a method is presented for determining the maximum wheel load acting on a ballasted railway track, via a fully analytical calculation of the contribution of the vehicle's unsprung masses. In this respect, mathematical models modeling the rolling stock - railway track interaction in the mid to high frequencies are applied, taking into consideration the geometric, dynamic and construction characteristics of the railway track, as well as the wheel - rail contact interface parameters. The proposed method may be used primarily, as proposed, in the design process of rails, as well as other elements of a ballasted railway track provided that the necessary refinements are made

(Authors)

K-W: Railway Track, Dynamic Loading, Design Load, Total Load Acting on Track, Non Suspended (Unsprung) Masses

Pikridas, Ch., Fotiou, A. (A.U.Th., Sch. of Rural & Surveying Engineering, Dept. of Geodesy & Surveying)

Προσδιορισμός Θέσης με χρήση Εικονικών Σταθμών Αναφοράς GPS. Εφαρμογή στην Ευρύτερη Περιοχή της Θεσσαλονίκης (Positioning using Virtual Reference Stations. Application in the Broader Area of Thessaloniki)

Tech. Chron. Sci J.T.C.G., I, Jan. – Apr. 2010, vol. 1, no 1, pp.33-42, tab. 2, 18 ref.

The main goal of the present paper is the study of the Virtual Reference Station technique. It is based on a network of permanent reference stations and aims at the improvement of the position accuracy when running in RTK or DGPS mode, usually for baselines more than 10 km. The method is based on the creation of GPS raw data for a virtual reference station that imitates a local GPS reference station at the user's approximate position. Consequently, the systematic errors are reduced much more effectively than by using a remote permanent reference station. This can be achieved by the proper processing of data from several reference GPS stations in a central control station. Then, through interpolation at the user's approximate position, the VRS data are created. Software using C/A code data was developed in order to test the effectiveness of the method. For this purpose, three GPS stations formed a network established in the wider Thessaloniki area. VRS data were created almost 20Km away from the nearest permanent station and three types of solutions were derived and compared with each other. The results show an improvement in the positional accuracy when the VRS technique is applied.

(Authors)

K-W: GPS, VRS, RTK, HEPOS

Stefanidou, M.

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. 2010, vol. 1, no 1, pp.43-48, tab. 4 , 12 ref.

The production of repair mortars used for intervention works in monuments and historic buildings is a complicated task that has been developed through the last twenty years based on trial and errors that in many cases have cost the loss of irreplaceable elements of our world cultural heritage. Through that procedure though, experience was gained. As these repair mortars are usually based on traditional materials, they are characterized as low potential materials and attend care during all the stages of their production and application.

(Author)

K-W: Repair Mortar, Historic Structures, Compressive Strength, Porosity, Workability

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Papadopoulos, G., Georgiou, E., Mamassis, N.

Mimikou, M. (NTUA, Sch. of Civil Engineering)

Εκτίμηση Χωρικής Κατανομής Κλιματικών και Βιοκλιματικών Δεικτών στην Περιοχή της Αττικής με Χρήση Δεδομένων του Δικτύου METEONET (Estimation of The Regional Distribution of Climatic and Bioclimatic Indices in the Attica Area Using the METEONET Network Data

Tech. Chron. Sci J.T.C.G., I, Jan. – Apr. 2010, vol. 1, no 1, pp.49-60, tab. 5 , 14 ref.

This paper has as main objective the climatic and bioclimatic investigation of the wider area of Athens that is defined by the fully automated telemetric network of stations (METEONET), which has been installed by the National Technical University of Athens. The climatic and bioclimatic investigation of the study area was accomplished by the use of climatic and bioclimatic indices. From the wide spectrum of indices that exist, the appropriate indices were selected in order to describe the climatic conditions of Athens as well as possible. Firstly, the indices were calculated for every hydrometeorological station and afterwards a surface completion of data was realized with the use of Arc Map software, by applying the interpolation method IDW. The results were many thematic maps for every climatic index on a monthly basis. The spatial depiction illustrates the climatic classification of the study area and provides valuable information about climatic conditions.

(Authors)

K-W: Climatic Indices, Bioclimatic Indices, Thermal Comfort, Urban Environment, METEONET, G.I.S

Yiannakou, A

Natsinas, T.

Χωρική Δομή και Προαστιακός Σιδηρόδρομος στην Κεντρική Μακεδονία: Αναζητώντας τη Συνέργεια Χωρικού και Συγκοινωνιακού Σχεδιασμού (Regional Spatial Structure and Regional/Suburban Rail in Central Macedonia)

Tech. Chron. Sci J.T.C.G., II, Jan. – Apr. 2010, vol. 1, no 1, pp.61-80, tab. 4, 36 ref.

This article explores the potential for development of a regional/suburban rail system in the region of Central Macedonia and stresses the need for a synergy between transport and spatial policy within the regional context. A number of proposals for the operation of suburban or regional railway lines have been put forward at different points in time and have recently been recorded in the form of a “transport map”, while some regional rail connections are already in operation. The various proposals for the operation of a suburban railway system in Thessaloniki hardly take spatial planning into consideration. It is argued here that the development of a regional/suburban railway should exploit the existing rail infrastructure and be at the same time connected with the promotion of new forms of spatial development, namely with a polycentric model for the Region of Central Macedonia and with a more compact urban structure.

(Authors)

K-W: Regional Structure, Suburban Rail, Transport Police

Tzouvadakis, I. (NTUA, Faculty of Civil Engineering)

Ioannidis, I.

Προσδιορισμός Θέσης με Χρήση Εικονικών Σταθμών Αναφοράς GPS. Εφαρμογή στην Ευρύτερη Περιοχή της Θεσσαλονίκης (Contribution to the Automatic Recording of Pedestrian Traces, via Computer, from Video files)

Tech. Chron. Sci J.T.C.G., II, Jan. – Apr. 2010, vol. 1, no 1, pp. 81-90, tab. , 15 ref.

This paper presents a relatively simple recording method, via computer, for tracking the movement of pedestrians. The movement is recorded by a video camera in a chosen area of pedestrian traffic in an urban area. This method has been developed in N.T.U.A.. as part of a project for wider research investigating the flow of pedestrians moving in counter streams.

For this method, special functions and corresponding software in the VISUAL BASIC and ALISP languages have been developed. Because the code concerned, with its comments and analysis, is extensive, it has been submitted to the editing committee of the bulletin in an annex and it is available to those interested, with the agreement of the editing committee or the authors.

An extension of the method may be used for analysis and study of other moving objects in urban areas. (For example forms of vehicle circulation at street intersections).

(Authors)

K-W: Motion Capture, Pedestrian Movement - Behaviour

Theodora, Y.

Προσέγγιση των Επιδράσεων των Περιφερειακών Πανεπιστημίων στην Ανάπτυξη των Περιφερειών της Ελλάδας (Approach to the Effects of Greek Regional Universities on Development of the Country's Regions)

Tech. Chron. Sci J.T.C.G., II, Jan. – Apr. 2010, vol. 1, no 1, pp.91-108, tab. 11, 60 ref.

Although the start of the debate on the contribution of universities to local and regional development dates back several decades, it is only in the past 25 years that it has intensified and been viewed from a new angle of investigation and consideration. It is therefore imperative that the “higher education – development” relationship be reviewed and placed on a different basis. The primary reason for this is the

major change in the content of “development” and the concept of “university” - mainly in terms of its role in society and the economy. In the context of this general consideration at global level, it is investigated whether the Greek regional universities- as they have been established, allocated, organized and operating- have played, and may play, some part in the development of the broader areas. The implementation of the study was based on the investigation of the relevant international and Greek bibliography, and on a series of surveys focusing on: a) the Greek planning system for “development”, “spatial”, “regional policies” and their association with “higher education”, b) the entirety of regional universities and cities of Greece, placing special emphasis on the seventeen university cities.

(Author)

K-W: Local Development, Regional Development, Higher Education

Nikas, G.

Η Έκδοση των Οικοδομικών Αδειών από τη Σύσταση του Νεοελληνικού Κράτους έως τη Δημοσίευσή του Ν.Δ./17.7.1923 (Issuing Of Construction Permits From The Formation Of The Modern Greek State Until The Publication Of L.D./17.7.1923)

Tech. Chron. Sci J.T.C.G., II, Jan. – Apr. 2010, vol. 1, no 1, pp.109-120 , tab. 11, 12 ref.

This study concerns the historical evolution of the manner of issuing construction permits from the year 1828, when the Greek state was formed, until the year 1923, when the Legislative Decree of 17th July, 1923, on “planning and constructing in the state’s cities and communities”, a fundamental Legislative Decree for the urban planning law, was issued. The registration-study of this procedure are presented, together with the documentation and specifications prescribed for the necessary data as defined by the law applied in each case. For historical-political and law practice reasons, the period under study is divided in three units (Kapodistrian, Otto & George I until 1923), so that the law image of each period is clearly defined. Also presented are complementary research material, archive source documents, such as original permit stubs, a Bill in the French language, unpublished in the Official Gazette, where the elaboration of a permit issuing system is clearly defined in a very premature form, etc. There is also a comparison with regions of the country that were not yet part of the Greek territory (Ionian Islands, Cretan State), in order to show the differences existing between them.

(Author)

K-W: Construction Permits