

ABSTRACT

Digital Elevation Model (DEM) is nowadays considered to be the most useful model that distributes the elevations of features reasonably easier than old methods. There are different methods for making a Digital Elevation Model; the first one is by collecting heights from field, from which a contour map is drawn but this is very difficult and takes more time on large area. It is easier and economical to extract the DEM from a digital image.

A Digital Elevation Model (DEM) for the eastern part of Abudelik was taken from the Advance Space born Thermal Emission and Reflection Radiometer (ASTER) by its coordinates with 30m resolution. Geographic Information System (GIS) was used to extract the elevations of the grid from the (DEM) with varying point densities.

The main conclusion reached is that accuracy of interpolated elevations depends on point's distribution and location of each point within the grid.

المستخلص

يعتبر نموذج الإرتفاعات الرقمي من اكثر النماذج أهمية هذه الايام لأنه يقوم بتوزيع إرتفاعات المعالم بصورة دقيقة . هناك العديد من الطرق لعمل نموذج إرتفاعات منها أخذ إرتفاعات ورسم شبكة كنتورية ولكن هذا العمل مرهق في حالة المساحات الواسعة والمعالم الكثيرة ، لذلك كان استخلاص نموذج الإرتفاعات من الصورة الرقمية أفضل توفيراً للمجهود والميزانية .

تم قطع نموذج إرتفاعات رقمي (DEM) بدرجة وضوح 30متر لمنطقة ابودليق شمال شرق ولاية الخرطوم من صور أقمار صناعية (آستر) . تم إستخدام برنامج نظم المعلومات الجغرافية (GIS) لإستخلاص قيم الإرتفاعات لنقاط الشبكة من نموذج الإرتفاعات الرقمي بكثافات نقطية مختلفة.

الخلاصة المهمة التي تم التوصل اليها ان دقة الإرتفاعات الرقمية يعتمد على توزيع النقاط وموقع كل نقطة بالنسبة لبقية النقاط .

Dedication

To my lovely children **yageen & Ali**

and my husband **Sirag**

Without whom this research would have been completed

Four years earlier.

To my **mother** ... Thanks to make my life easier

To my **father,**

to my **brothers, my sisters**

and

to everyone help me to go on.

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