

VIRTUAL FIELDWORK ON URBAN HEAT ISLAND IN SINGAPORE

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ABSTRACT

The use of remotely sensed images and the Geographic Information System in Singapore's school teaching environment is only at an infant stage. Here the co-presenters attempt to explain and demonstrate an alternative to the traditional classroom teaching approach on the urban microclimate with the use of two up-to-date geo-coded remotely sensed images to be operated under the ArcView Spatial Analyst environment.

The proposed approach may actually be taken at two levels:

- (i) As a preliminary classroom-based *virtual fieldwork* to bring home concepts related to the Urban Heat Island phenomenon; and to provide opportunities for students to explore and discover for themselves the relationships between horizontal surface temperature variations and the types of land uses; and
- (ii) As a further step involving higher order thinking skills, to get students who have understood the Urban Heat Island concepts to formulate appropriate hypotheses to be scientifically verified in the field.

Now the focus of this presentation is only on the first stage. The essence of the methodology involved the use of a land cover image and a mean surface temperature image of Singapore which are neatly geo-coded. To allow students to have a more clearly defined picture of the actual land use pattern, a coloured land use map from the atlas is incorporated to provide useful cross references.

After the initial guidance and demonstration by the teacher on the operations of the software and students' hands-on practices and discoveries, the students will be given simple data response type of questions to assess on their learning situations and if need be, further reinforcement exercises will be administered. The final outcome will be to get students to accurately correlate the various surface temperatures at different locations with those of the land use types found therein.