INTRODUCTION AND APPLICATION OF GEOSPATIAL CORRELATIVE INTEGRATION

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Outline

1. Introduction to Geospatial Correlative Integration.
2. Application of Geospatial Correlative Integration.
3. Conclusion
Introduction to GCI

• Need to predict events such as natural hazard, geological resources, environmental pollution and, ecosystem and habitat pattern.

• We need to create susceptibility or potential maps of each event.

• For this purpose, Geographical Information System (GIS) and Remote sensing (RS) technologies are useful tools for creating the susceptibility or potential maps in the fields.

• The goal of GCI is “to create susceptibility or potential maps using expert-opinion, probabilistic, statistical and data-mining models.”
Introduction to GCI

Application of GCI


Landslide studies
Application of GCI

Sampling of Leopard cat habitat by field survey

Training data (60% of sampling locations) => Random selection => Sampling locations => Random selection => Validation data (50% of sampling locations)

Database Construction
- Ground Elevation, Slope, Aspect, Timertype, Timber age, Road distance from water, Forest Distance, Land Cover

Frequency ratio model (FR)
- Class 3: 1.25
- Class 2: 0.79
- Class 1: 1.00

Artificial Neural networks (ANN)

Logistic regression model (LR)

Validation
- Receiver operating curve
- Field verified Sampling locations

Habitat studies

Application of GCI

Groundwater studies

Application of GCI

Mineral deposit studies

Conclusion

• Many case studies in various geoscience disciplines have used GCI to generate maps including expert opinion, probabilistic, statistical, and data-mining approaches.

• GIS is a tool which helps finding suitable place for certain activities or development (e.g. zonation and suitability location)

• Unlike any other type of information handling tool, GIS can understand the concept of location.

• Lastly, GIS is important to us because it helps you make decisions based upon geographical information.
Design is not just what it looks like or feels like. Design is how it works. – Steve Jobs

THANK YOU