

or minus 3-5m) so you can see how your cave system relates to the geography of the area.

Unfortunately, the whole process could become a one person operation but, if some members do the field work, others the inputting of survey data and others input the information into the GIS, someone else could do the map drawing. Alternatively, various members could look after certain areas of their state.

## Conclusion

GIS has the potential to revolutionise cave surveying and data collection for large areas, but if you draw maps of single caves, *Adobe Illustrator* may be the way to go. If you have several caves with surveys and you want them geographically oriented to overlay an aerial photograph, and you also want to include creek lines, contours and data about cave animals or bat specimens found, then a GIS system is the way to integrate your data.

If you explore the countryside with a GPS and take a waypoint reference of caves you find and then undertake cave surveys and use a software program to reduce your data, and later you draw cave maps using software you are three-quarters the way to using a GIS system. So, why aren't you using GIS to do the complete task?

If you want information on Mapinfo contact Susan White or John Webb. The author can be contacted at [rkershaw@ozemail.com.au](mailto:rkershaw@ozemail.com.au)

## References

Horrocks, R.D. & Szukalski, B.W. (2002) Using geographic information systems to develop a cave potential map for Wind Cave, South Dakota. *Journal of Cave and Karst Studies* **64(1)**: 63-70.

Florea, L.J. Paylor, R.L. Simpson, L. & Gulley, Jason (2002) Karst GIS advances in Kentucky. *Journal of Cave and Karst Studies* **64(1)**: 58-62.

McNeil, B.E., Jasper, J.D., Luchsinger, J.A. & Rain-smier, M.V. (2002) Implementation and application of GIS at Timpanogos Cave National Monument, Utah. *Journal of Cave and Karst Studies* **64(1)**: 34-37.

Ohms, R. & Reece, M. (2002) Using GIS to manage two large cave systems, Wind and Jewel Caves, South Dakota. *Journal of Cave and Karst Studies* **64(1)**: 4-8.

Szukalski, B.W. (2002) Introduction to cave and karst GIS. *Journal of Cave and Karst Studies* **64(1)**: 3.

<sup>1</sup> *ESRI is the abbreviation for Environmental System Research Institute..Shapefiles are a term used by ESRI and other GIS for points, lines and shapes.*

## Out of Harm's Way: Best Practice for Risk Management in Caves

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### Abstract

What do the ASF members want from the Safety, Leadership and Risk Management Committee? I would like to workshop the issue of new members and what would be reasonably expected from an ASF member who "puts themselves out there" as a leader. Risk management should be seen as an opportunity that any true leader would welcome as a challenge.

For effective risk management, the rewards are to be found in the events that do not happen. It is a fact that good risk management results from constant risk assessment, evaluation and monitoring. The lack of risk management can be seen in incident reports and relatives' faces. What can we say when the judge asks "what else could the defendant have done to minimize the harm?" How do you respond when your comrades say "if only we had... done something differently, thought this through, done another cave, stayed at home."

Come to the SLARM workshop to begin the ongoing commitment of ASF to be leaders. Agenda items are as follows:

- What is a leader and what is expected?
- What is Duty of Care?
- When is a beginner not a beginner?
- Risk Perception
- Environmental Risk
- Formal Training and qualifications
- What's the law got to say?
- What do you want from the SLARM Committee?