





## 5. CONCLUSION

E-learning should be seen as supplementary to and supporting of traditional methods rather than as a replacement technology (Wentz et al., 1999).

The study aims to stimulate an active learning attitude offering students means of self-study with integrated permanent evaluation. It also encourages teachers to use such data in their curriculum by providing ready-made material.

Herein lies one of the underlying principles of e-learning: that the application of IT to learning and teaching should enhance the learning experience of the student and the ability of the teacher to impart skills and knowledge, not reduce it (Carver et al., 2004).

The organized storage of spectral data described by metadata is important for long-term use and data sharing with other scientists (Bojinski et al., 2003; Hueni et al., 2009).

A comprehensive collection of spectral measurements from a variety of natural and artificial surfaces with intuitive user interfaces has been created on web-based interfaces (Milton et al., 2009). Using these data can help in e-learning education and also allows users (students and researchers) to practice with real ones.

### References

- Bojinski, S., Schaepman, M., Schlaepfer, D., & Itten, K. 2003. SPECCHIO: A spectrum database for remote sensing applications. *Computers and Geosciences*, 29, 27-38.
- Brondeel, M., De Wolf, N., De Maeyer, Ph., Antrop, M., & Ongena, T. 2004. Complementary training on contemporary positioning using a website based application. *International Geoscience and Remote Sensing Symposium (IGARSS)* 7, pp. 4807-4809.
- Carver, S., Evans, A., & Kingston, R. 2004. Developing and Testing an Online Tool for Teaching GIS Concepts Applied to Spatial Decision-making. *Journal of Geography in Higher Education*, 28(3): 425-438
- Clark, R., 1993. SPECTRUM Processing Routines User's Manual (program SPECPR): version 3. Open File Report 93-595, US Geological Survey, Denver, CO, 210pp.
- Fang, L., Chen S., Zhou, X., Liao S., Chen, L. 2007. A Web-based Spectrum Library for Remote Sensing Applications of Poyang Lake Wetland. *Annals of GIS*, 13: pages 3-9.
- Grove, C., Hook, S., Paylor, E., 1992. Laboratory reflectance spectra for 160 minerals 0.4-2.5 $\mu$ m. Publication 92-2, Jet Propulsion Laboratory, Pasadena, CA, 405pp
- Guanter, L., Ruiz-Verdú, A., Odermatt, D., Giardino, C., Simis, S., Estellés, V., Heege, T., Domínguez-Gómez, A.J., Moreno, J. 2010. Atmospheric correction of ENVISAT/MERIS data over inland waters: Validation for European lakes. *Remote Sensing of Environment*, 114: 467-480
- Jacquemoud, S., Baret, F., 1990. PROSPECT: A model of leaf optical properties spectra. *Remote Sensing of Environment*, 34, 75-91.
- Hüni, A., Nieke, J., Schopfer, J., Kneubühler, M., & Itten, K.I. 2007. Metadata of spectral data collections. Proceedings. *5th EARSeL Workshop on Imaging Spectroscopy*. Bruges, Belgium, April 23-25.
- Milton, E.J., Schaepman, M.E., Anderson, K., Kneubühler, M., Fox, N. 2009. Progress in field spectroscopy. *Remote Sensing of Environment*, 113: 92-109
- Schaepman, M.E. 2007. Spectrodirectional Remote Sensing: From Pixels to Processes. *International Journal of Applied Earth Observation and Geoinformation*, 9: 204-223
- Shortis, M.R., & König, G. 2008. Computer aided teaching in photogrammetry, remote sensing and GIS – a status review. *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences. Vol. XXXVII. Part B6a. Beijing 2008. Pp: 37-44*
- Sobh, T., Mihali, R., Ghimire, B., Vovk, K., Gosine, G., & Batra, P. 1998. Web-controlled devices and remote manipulation: distance learning case studies. *International Journal of Robotics Research*, 17 (3): 120-125
- Van der Meer, F., De Jong, S., & Bakker, W. 2001. Imaging spectrometry: basic analytical techniques. In: van der Meer, F., de Jong, S. (Eds.), *Imaging Spectrometry: Basic Principles and Prospective Applications*. Kluwer Academic Publishers, Dordrecht, The Netherlands, pp. 17-61.
- Wentz, E.A., Vender, J.C. & Brewer, C. A. (1999) An evaluation of teaching introductory geomorphology using computer-based tools, *Journal of Geography in Higher Education*, 23(2), 167-199.
- Zhang, Z., & Kenny, F.R. 2010. Learning in an online distance education course: experiences of three international students. *International Review of Research in Open and Distance Learning*, 11(1): 17-36