

Literature list

Visualizing Sustainability Challenges and Pathways (746A88)

7.5 ECTS Credits

Single subject and programme course within
Master's programme in
Science for Sustainable Development

MANDATORY LITERATURE

Week 39

- Christa Kelleher, Thorsten Wagener (2011). Ten guidelines for effective data visualization in scientific publications. *Environmental Modelling & Software*, Volume 26, Issue 6, 2011, Pages 822-827, ISSN 1364-8152, <https://doi.org/10.1016/j.envsoft.2010.12.006>.
- A periodic table of data visualization: http://www.visual-literacy.org/periodic_table/periodic_table.html
- Choosing Colors for Data Visualization: www.perceptualedge.com/articles/b-eye/choosing_colors.pdf
- ColorBrewer: color advice for cartography <http://colorbrewer2.org/>
- Data Visualization: Rules for Encoding Values in Graph: www.perceptualedge.com/articles/b-eye/encoding_values_in_graph.pdf
- Improving Visualization: <http://www.improving-visualisation.org/case-studies>
- Introduction to Geographical Data Visualization: http://www.perceptualedge.com/articles/visual_business_intelligence/geographical_data_visualization.pdf
- Wang, S., Corner, A., Chapman, D., & Markowitz, E. (2018). Public engagement with climate imagery in a changing digital landscape. *WIREs Climate Change*, 9(2), e509. <https://doi.org/10.1002/wcc.509>
- Nerlich, B., Koteyko, N. & Brown, B. (2010). Theory and language of climate change communication. *WIREs Climate Change*, 1:97-110.

- Wibeck, V.; Neset, T.-S.; Linnér, B.-O. (2013) Communicating Climate Change through ICT-Based Visualization: Towards an Analytical Framework. *Sustainability* 2013, 5: 4760-4777.
- Wiréhn, L., Opach, T., Neset, T.-S. (2016) Assessing agricultural vulnerability to climate change in the Nordic countries – an interactive geovisualization approach. *Environmental Planning and Management*. DOI: 10.1080/09640568.2016.1143351.
- Rød J.-K., Opach T., Neset T.-S. (2015). Three core activities toward a relevant integrated vulnerability assessment: validate, visualize, and negotiate. *Journal of Risk Research*, 18 (7): 877–895.
- Dangerman & Artz (2010). Climate Change is a Geographic Problem - The Geographic Approach to Climate Change
<http://www.esri.com/library/ebooks/climate-change.pdf>
- Dangermond & Baker (2010). GIS for Climate Change
<https://www.esri.com/library/bestpractices/climate-change.pdf>
- General introduction to ArcGIS:
<http://www.lib.umd.edu/binaries/content/assets/public/gov-info-gis/research-and-instruction/introduction-to-gis-workbook.pdf>

Week 40

- Neset, T.-S., Opach, T., Lilja, A., Lion, P., Johansson, J. (2016). Map-Based Web Tools Supporting Climate Change Adaptation. *The Professional Geographer* 68 (1), 103-114, DOI: 10.1080/00330124.2015.1033670.
- Jacobs, K. L., & Street, R. B. (2020). The next generation of climate services. *Climate Services*, 20, 100199.
<https://doi.org/10.1016/j.cliser.2020.100199>
- Winters, Kirsten M., Cushing, Judith B., and Lach, Denise (2016). Designing Visualization Software for Super-wicked Problems' *Information Polity*, vol. 21, no. 4, pp. 399-409.
- Kennedy, Helen & Engebretsen, Martin (2020): "Introduction: The relationships between graphs, charts, maps and meanings, feelings, engagements". In Engebretsen, M. & Kennedy, H. (Eds.) *Data Visualization in Society*. Amsterdam University Press, pp: 19-32. (Open access) <https://library.oapen.org/bitstream/handle/20.500.12657/22273/9789048543137.pdf?sequence=1&isAllowed=y>
- Van Beurden, A. U. C. J. and Douven, W. J. A. M. (1999) Aggregation issues of spatial information in environmental research, *International Journal of Geographical Information Science*, 13:5, 513-527, DOI: 10.1080/136588199241184

Week 41

- Harrower (2003) Tips for designing Effective Animated Maps, *Cartographic perspectives*, 44: 63-65:
<http://cartographicperspectives.org/index.php/journal/article/download/cp44-harrower/pdf>
- Kraak (2003) Geovisualization illustrated, *ISPRS Journal of Photogrammetry and Remote Sensing*, 57(5–6):390-399 [https://doi.org/10.1016/S0924-2716\(02\)00167-3](https://doi.org/10.1016/S0924-2716(02)00167-3)
- Dodge & Congalton (2013). Meeting Environmental Challenges with Remote Sensing Imagery. Can be downloaded from:
<http://www.americangeosciences.org/sites/default/files/RemoteSensing.pdf> Selected Case studies:
 - "Remote Sensing identifies Hail Damage to Crops", p.36-37
 - "Remote Sensing identifies Agricultural Problem Areas", p.48-49
 - "Remote Sensing Enables Census of Lake Water Quality", p.50-53
 - "Remote Sensing Monitors Vegetation Changes Over Time", p.58-61
 - "Remote Sensing Enables Space Shuttle Columbia Recovery", p.80-81

Week 42

- Ertiö, T-P. (2015). Participatory Apps for Urban Planning—Space for Improvement. *Planning Practice & Research*, 30(3), 303-321. DOI: 10.1080/02697459.2015.1052942
- Neset, T.-S., Wilk, J., Navarra, C., Capell, R., Bartosova, A. (2019). Visualization supported dialogues in the Baltic Sea Region. *AMBIO*. Volume 48, [Issue 11](#), pp 1314–1324 <https://doi.org/10.1007/s13280-019-01250-6>
- Sheppard, S.R.J., Shaw, A., Flanders, D., Burch, S., Wiek, A., Carmichael, J, Robinson, J., Cohen, S. (2011). Future visioning of local climate change: A framework for community engagement and planning with scenarios and visualization. *Futures* 43 (2011)
- Neset, T.-S., Andersson, L., Uhrqvist, O., Navarra, C. (2020). Serious Gaming for Climate Adaptation—Assessing the Potential and Challenges of a Digital Serious Game for Urban Climate Adaptation. *Sustainability* 2020, 12, 1789; doi:10.3390/su12051789

Optional Reading

Bishop, I. D. (2011). Landscape planning is not a game: Should it be? *Landscape and Urban Planning*, 100: 390-392.

Bishop et al (2013). Evaluation of data visualisation options for land-use policy and decision making in response to climate change. *Environment and Planning B: Planning and Design* 2013, volume 40, pages 213 – 233

Gammelgaard Jensen, A, Wibeck, V, Neset, T-S. (2016). Images of climate change – a pilot study of young people’s perceptions of ICT-based climate visualization. *Climatic Change*, 134(1), 73-85. DOI:10.1007/s10584-015-1533-9

Hulme, M. (2010). Problems with making and governing global kinds of knowledge. *Global Environmental Change* Volume 20, Issue 4, October 2010, Pages 558-564

Hägerstrand, T. (1970) ‘What about people in regional science?’, *Papers in Regional Science*, 24(1).

Lewis, J L. and Sheppard, S.R.J. (2006). Culture and communication: Can landscape Visualisation improve forest management consultation with indigenous communities? *Landscape and Urban Planning*, 77: 291-313.

Marková, I., Linell, P., Grossen, M., and Salazar Orvig, A. (2007) *Dialogue in Focus Groups: Exploring Socially Shared Knowledge*. London: Equinox.

Moser, S. & Dilling, L. (2004). Making climate hot: Communicating the urgency and challenge of global climate change. *Environment*, 46, 32–46.

Moser SC (2010). Communicating climate change: history, challenges, process and future directions. *Wiley Interdiscip Rev Clim Change* 1:31–53

Multidimensional data and GIS: <https://pro.arcgis.com/en/pro-app/latest/help/data/imagery/an-overview-of-multidimensional-raster-data.htm>

Navarra, C. *et al.* (2020) ‘Visual Exploration of Climate-Related Volunteered Geographic Information’, pp. 1–7. doi: 10.2312/envirvis.20201092.

Neset, T.-S., Glaas, E., Gammelgaard Ballantyne, A., Linnér, B.-O., Navarra, C., Opach, T., Johansson, J., Bohman, A., Rød, J.K., Goodsite, M.. (2016). Climate Change at your Doorstep – Geographic Visualization to support Nordic homeowners in adapting to climate change. *Applied Geography* 74: 65–72, DOI:10.1016/j.apgeog.2016.07.003

Nocke, T.; Sterzel, T.; Böttinger, M.; Wrobel, M. (2008). Visualization of Climate and Climate Change Data: An Overview, in Ehlers et al. (Eds.). *Digital Earth Summit on Geoinformatics: Tools for Global Change Research*

O’Neill, S. & Nicholson-Cole, S. (2009). ‘Fear won’t do it’: Promoting positive engagement with climate change through visual and iconic representations. *Science Communication*, 30, 355–379.

Ouariachi, Tania., Olvera-Lobo, María Dolores & Gutiérrez-Pérez, José. 2017. Analyzing Climate Change Communication Through Online Games: Development and Application of Validated Criteria. *Science Communication*, Vol. 39 (1) 10–44

- Reckien, D., & Eisenack, K. 2013. Climate change gaming on board and screen: A review. *Simulation & Gaming*, 1046878113480867.
- Rose, Gillian (2016). *Visual methodologies: an introduction to researching with visual materials*. 4th edition London: Sage, pp. 1-23
- Salter, J.D., Campbell C., Journeay, M., Sheppard, S.R.J. (2009). The digital workshop: Exploring the use of interactive and immersive visualisation tools in participatory planning. *J. of Environmental Management*, 90: 2090-2101.
- Seebacher, D. *et al.* (2019) 'Visual Analytics of Volunteered Geographic Information: Detection and Investigation of Urban Heat Islands', *IEEE Computer Graphics and Applications*, 39(5), pp. 83–95. doi: 10.1109/MCG.2019.2926242.
- Shaw, Alison, Stephen Sheppard, Sarah Burch, David Flanders, Arnim Wiek, Jeff Carmichael, John Robinson, and Stewart Cohen. (2009). "Making Local Futures tangible—Synthesizing, Downscaling, and Visualizing Climate Change Scenarios for Participatory Capacity Building." *Global Environmental Change* 19 (4) (October): 447–463.
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- Spence, R. (2007). *Information Visualization: Design for Interaction (2nd Edition)*. ISBN-13: 978-0132065504.
- Tufte, E.R. (1990). *Envisioning Information*. ISBN-13: 978-0961392116
- Vrotsou, K. *et al.* (2014) 'PODD: A portable diary data collection system', in *Proceedings of the Workshop on Advanced Visual Interfaces AVI*. doi: 10.1145/2598153.2600046.
- Ware, C. (2013). *Information Visualization, Third Edition: Perception for Design (Interactive Technologies)*. ISBN-13: 978-0123814647
- Wibeck, V. (2010) *Fokusgrupper: om fokuserade gruppintervjuer som undersökningsmetod* [Focus groups: on focused group interviews as a research method]. Lund, Sweden: Studentlitteratur.
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CALP (2010). Local Climate Change Visioning and Landscape Visualizations – Guidance Manual. <http://web.forestry.ubc.ca/calp/CALP-Visioning-Guidance-Manual-V1-1.pdf>

More on the CALP visioning projects: <http://calp.forestry.ubc.ca/resources/>