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1. Education Background

2006 Ph.D., Geology, University of Minnesota, Minneapolis
1996 M.S., Geology, Nanjing University, Nanjing, China
1993 B.S., Geology, Nanjing University, Nanjing, China

2. Research Interests

Paleoclimatology, isotope geochemistry, the use of isotopic and elemental tracers and chronometers to study climate history and ocean chemistry

3. Professional Experience

03/2019 - Associate Professor, Asian School of the Environment,
Nanyang Technological University (NTU), Singapore
07/2011 - Principal Investigator, Earth Observatory of Singapore, NTU
07/2011 - 02/2019 Nanyang Assistant Professor, ASE, NTU of Singapore
07/2011 - LDEO Adjunct Associate Research Scientist
08/2009 - 06/2011 LDEO Postdoctoral Research Fellow, Columbia University, USA
02/2006 - 08/2009 Gary Comer Science & Education Postdoctoral Research Fellow,
University of Minnesota, USA

4. Professional Membership

American Geophysical Union, Geochemical Society

5. Awards

2011 Singapore National Research Foundation Fellowship
2009-2011 Postdoctoral Research Fellowship, LDEO, Columbia University
2006-2008 Gary Comer Science & Education Postdoctoral Fellowship
2006 Berkeley Geochronology Center Postdoctoral Fellowship (Declined)
2005 Chinese Government Award for Outstanding Graduate Students Abroad

6. Supervision and mentoring at NTU

Ph.D. students:

Current: Yang Liu DongQing (2016-); Wong Minn Lin (2018-).

Graduated:

Yudha Djamil, PhD awarded 2019. Dissertation Title: *Mid-Holocene climate change over the maritime continent: Impact, attribution and mechanisms.*

Shufang Yuan, PhD awarded 2019. Dissertation Title: *Hydroclimate changes in the maritime continent over the past 30,000 years recorded by speleothems from Sulawesi, Indonesia.*

Liu Guangxin, PhD awarded 2018. Dissertation Title: *Tracking hydroclimate changes in mainland Southeast Asia through the past 180,000 years.*

Postdoc advisees:

Gonzalo Carrasco (2020-), David Cook (2019-), Guleed Ali (2019-),
Yama Dixit (2018-2020), Lu Yanbin (2016-2019), Sylvain Rigaud (2015-2017),
Frederique Leclerc (2014-2016), Reshmi Das (2012-2016), Chiang Hong-Wei (2011-2016)

7. Service Activities

ASE Assistant Chair, Lifelong Learning program (2020-)
NTU EP1 Sub-Committee member (2019-)
NTU Faculty & Staff Giving and Development Ambassador for ASE (2019-)

Journal Editorial Board member:

Quaternary International by Elsevier on behalf of the INQUA
Science China - Earth Sciences by CAS, NSFC and Springer
National Science Review by Chinese Academy of Sciences, China

Journal Reviewer:

Nature, Proceedings of the National Academy of Sciences,
Science Advances, Nature Communications,
Earth and Planetary Science Letters, Quaternary Science Reviews,
Geology, Geochimica et Cosmochimica Acta, Climate of the Past,
Quaternary Research, Geophysical Research Letters, Chemical Geology,
JGR-Atmospheres, Quaternary International,
Chinese Science Bulletin, Quaternary Geochronology,
Journal of Quaternary Science, Journal of Asian Earth Science,
Holocene, Palaeogeography Palaeoclimatology Palaeoecology

Proposal Reviewer:

European Research Council,
National Science Foundation,
National Geographic Research and Exploration,
Taiwan National Science Council,
Hong Kong Research Grants Council

8. Journal Publications

2020

Chawchai, S., Liu, G., Bissen, R., Scholz, D., Riechelmann, D., Vonhof, H., Mertz-Kraus, R.,
Chiang, H.-W., Tan, L., and **Wang, X.**, 2020. Hydroclimate variability of western
Thailand during the last 1400 years. *Quaternary Science Reviews*, accepted.
Nguyen, C., Chen, Y.-G., Lin, Y., Chiang, H.-W., Lam, D., **Wang, X.**, Yuan, S., Lone, M., Yu,
T.-L., Kuo, Y.-T., and Shen, C.-C., 2020. A decadal-resolution stalagmite record of

- strong Asian summer monsoon from Northwestern Vietnam over the Dansgaard-Oeschger events 2-4. *Journal of Asian Earth Sciences: X*, 3, 100027.
- Liu, G., Li, X., Chiang, H.-W., Cheng, H., Yuan, S., Chawchai, S., He, S., Lu, Y., Aung, L.T., Maung, P.M., Tun, W.N., Oo, K.M., and **Wang, X.**, 2020. On the glacial-interglacial variability of speleothem-inferred Asian Monsoon over the past 180,000 years. *Science Advances* eaay8189.
- Kench, P.S., McLean, R.F., Owen, S.D., Ryan, E., Morgan, K.M., Lin, K., **Wang, X.**, and Roy, K., 2020. Climate-forced sea-level lowstands in the Indian Ocean during the last two millennia. *Nature Geoscience* 13, 61-64.

2019

- Liu, X., Liu, J., Shen, C.-C., Yang, Y., Chen, J., Chen, S., **Wang, X.**, Wu, C.-C., and Chen, F., 2019. Inconsistency between records of $\delta^{18}\text{O}$ and trace element ratios from stalagmites: Evidence for increasing mid-late Holocene moisture in arid central Asia. *Holocene*, doi:10.1177/0959683619887431.
- Das, R., **Wang, X.**, Itoh, M., Shiodera, S., and Kuwata, M., 2019. Estimation of metal emissions from tropical peatland burning in Indonesia by controlled laboratory experiments. *Journal of Geophysical Research-Atmospheres* 124, 6583-6599.
- Ward, B., Wong, C., Novello, V.F., McGee, D., Santos, R., **Wang, X.**, Edwards, R.L., Silva, L.C.R., and Cheng, H., 2019. Reconstruction of Holocene coupling between the South America Monsoon System and local moisture variability from speleothem $\delta^{18}\text{O}$ and $^{87}\text{Sr}/^{86}\text{Sr}$ records. *Quaternary Science Reviews* 210, 51-63.
- Wendt, K.A., Hauselmann, A.D., Fleitmann, D., Berry, A.E., **Wang, X.**, Auler, A.S., Cheng, H., and Edwards, R.L., 2019. Three-phased Heinrich Stadial 4 recorded in NE Brazil stalagmites. *Earth and Planetary Science Letters* 510, 94-102.
- Liu, X., Rao, Z., Shen, C.-C., Liu, J., Chen, J., Chen, S., **Wang, X.**, and Chen F., 2019. Holocene solar activity imprint on centennial- to multidecadal-scale hydroclimatic oscillations in arid central Asia. *Journal of Geophysical Research-Atmospheres* 124, 2562-2573.
- Comas-Bru, L., Harrison, S.P., Werner, M., Rehfeld, K., Scroxton, N., Veiga-Pires, C., and SISAL working group members, 2019. Evaluating model outputs using integrated global speleothem records of climate change since the last glacial. *Climate of the Past* 15, 1557-1579.
- Chiang, H.-W., Lu, Y., **Wang, X.**, Lin, K., and Liu, X., 2019. High-precision U-Th isotopic measurements and ^{230}Th dating on carbonates by MC-ICP-MS SEM methods. *Quaternary Geochronology* 50, 75-90.
- Boch, R., **Wang, X.**, Kluge, T., Leis, A., Lin, K., Pluch, H., Mittermayr, F., Baldermann, A., Bottcher, M.E., and Dietzel, M., 2019. Aragonite-calcite veins of the 'Erzberg' iron ore deposit (Austria): Environmental implications from young fractures. *Sedimentology* 66, 604-635.

2018

- Das, R., Mohtar, A.T.B.M., Rakshit, D., Shome, D., and **Wang, X.**, 2018. Sources of atmospheric lead (Pb) in and around an Indian megacity. *Atmospheric Environment*, 193, 57-65.
- Majewski, J.M., Switzer, A.D., Meltzner, A.J., Parham, P.R., Horton, B.P., Bradley, S., Pile, J., Chiang, H.-W., **Wang, X.**, Ng, C.T., Tanzil, J., Muller, M., and Mujahid, A., 2018. Relative sea level proxy records from fossil coral microatolls in western Borneo, South

- China Sea: Sea-level stability by 7 ka and possible Holocene faulting. *Holocene* doi:10.1177/095968361877061.
- He, S., Goodkin, N.F., Kurita, N., **Wang, X.**, and Rubin, C.M., 2018. Stable isotope of precipitation during tropical Sumatra Squalls in Singapore. *Journal of Geophysical Research-Atmospheres* 123, 3812-3829.
- Atsawawaranunt, K., and SISAL Working Group Members, 2018. The SISAL database: a global resource to document oxygen and carbon isotope records from speleothems. *Earth System Science Data* 3, 1687-1713.
- Chawchai, S., Liu, G., Bissen, R., Jankaham, K., Paisojumlongsri, W., Kanjanapayont, P., Chutakositkanon, V., Choowong, M., Pailoplee, S., and **Wang, X.**, 2018. Stalagmites from western Thailand: preliminary investigations and challenges for paleoenvironmental research. *Boreas* 47, 367-376.

2017

- Zhu, J., Liu, Z., Brady, E.C., Otto-Bliesner, B.L., Marcott, S.A., Zhang, J., **Wang, X.**, Nusbaumer, J., Wong, T.E., Jahn, A., and Noone, D., 2017. Investigating the direct meltwater effect in oxygen-isotope paleoclimate records using an isotope-enabled Earth System model. *Geophysical Research Letters* 44, 12,501-12,510.
- Millo, C., Strikis, N.M., Vonhof, H.B., Deininger, M., Cruz, F.W., **Wang, X.**, Cheng, H., Edwards, R.L., 2017. Last glacial and Holocene stable isotope record of fossil dripwater from subtropical Brazil based on analysis of fluid inclusions in stalagmites. *Chemical Geology* 468: 84-96.
- Hudson, A., Quade, J., Ali, G., Boyle, D.P., Bassett, S., Huntington, K.W., Santos, M.G.D., Cohen, A.S., Lin, K., and **Wang, X.**, 2017. Stable C, O and clumped isotope systematics and ¹⁴C geochronology of carbonates from the Quaternary Chewaucan closed-basin lake system, Great Basin, USA: implications for paleoenvironmental reconstructions using carbonates. *Geochimica et Cosmochimica Acta* 212: 274-302.
- Haddad-Martim, P.M., Hubbe, A., Giannini, P.C.F., Auler, A.S., Pilo, L.B., Hubbe, M., Mayer, E., **Wang, X.**, Cheng, H., Edwards, R.L., and Neves, W.A., 2017. Quaternary depositional facies in cave entrances and their relation to landscape evolution: The example of Cuvieri Cave, eastern Brazil. *Catena* 157: 372-387.
- Wang, X.**, Edwards, R.L., Auler, A.S., Cheng, H., Kong, X., Wang, Y., Cruz, F., Dorale, J.A., and Chiang, H.-W., 2017. Hydroclimate changes across the Amazon lowlands over the past 45,000 years. *Nature* 541: 204-207.
- Dominguez-Villar, D., **Wang, X.**, Krklec, K., Cheng, H., and Edwards, R.L., 2017. The control of the tropical North Atlantic on Holocene millennial climate oscillations. *Geology* 45, 303-306.
- Philibosian, B., Sieh, K., Avouac, J.-P., Natawidjaja, D., Chiang, H.-W., Wu, C.-C., Shen, C.-C., Daryono, M., Perfettini, H., Suwargadi, B., Lu, Y., and **Wang, X.** 2017. Earthquake supercycles on the Mentawai segment of the Sunda Megathrust in the 17th century and earlier. *Journal of Geophysical Research-Solid Earth* 122, 642-676.

2016

- Chen, S., Wang, Y., Cheng, H., Edwards, R.L., **Wang, X.**, Kong, X., and Liu, D., 2016. Strong coupling of Asian Monsoon and Antarctic climates on sub-orbital timescales. *Scientific Reports* 6: 32995.
- Bernal, J.P., Cruz, F.W., Strikis, N.M., **Wang, X.**, Deininger, M., Catunda, M.C.A., Ortega-Obregon, C., Cheng, H., Edwards, R.L., and Auler, A.S., 2016. High-resolution

- Holocene South American monsoon history recorded by a speleothem from Botuvera Cave, Brazil. *Earth and Planetary Science Letters* 450, 186-196.
- Cheng, H., Edwards, R.L., Sinha, A., Spötl, C., Yi, L., Chen, S., Kelly, M., Kathayat, G., **Wang, X.**, Li, X., Kong, X., Wang, Y., Ning, Y., and Zhang, H., 2016. The Asian monsoon over the past 640,000 years and ice age terminations. *Nature* 534, 640-646.
- Diong, H.T., Das, R., Khezri, B., Srivastava, B., **Wang, X.**, Sikdar, P.K., and Webster, R.D., 2016. Anthropogenic platinum group element (Pt, Pd, Rh) concentrations in PM₁₀ and PM_{2.5} from Kolkata, India. *SpringerPlus* 5: 1242.
- Das, R., **Wang, X.**, Sikdar, P.K., and Datta, S., 2016. Mercury isotopes of atmospheric particle bound mercury for source apportionment study in an urban setting. *Elementa*, 4: doi: 10.12952/journal.elementa.000098.
- Yu, J., Menviel, L., Jin, Z., Thornalley, D.J.R., Barker, S., Marino, G., Rohling, E.J., Cai, Y., Zhang, F., **Wang, X.**, Dai, Y., Chen, P., and Broecker, W.S., 2016. Deep Atlantic carbon sequestration and atmospheric CO₂ decline during the last glaciation. *Nature Geoscience* 9, 319-324.

2015

- Campos, L.C.S., Teixeira, R.J.S., Rodrigues, A.I.P.C., **Wang, X.**, MacLeod, K., and Bassett, D., 2015. The isotope geochemistry of speleothems in the comprehension of Holocene climate dynamics at Natural Monument Cuevas de Fuentes de Leon region, Extremadura, Spain. *Comunicacoes Geologicas* 102, 137-141.
- Das, R., Khezri, B., Srivastava, B., Datta, S., Sikdar, P.K., Webster, R.D., and **Wang, X.**, 2015. Trace element composition of PM_{2.5} and PM₁₀ from Kolkata – a heavily polluted Indian metropolis. *Atmospheric Pollution Research* 6, 742-750.
- Cai, Y.J., Fung, I., Edwards, R.L., An, Z.S., Cheng, H., Lee, J.-E., Tan, L.C., Shen, C.-C., **Wang, X.**, Day, J., Zhou, W.J., Kelly, M., and Chiang, J.C.H., 2015. Variability of stalagmite-inferred Indian Monsoon precipitation over the past 252,000 years. *Proceedings of the National Academy of Sciences* 112, 2954-2959.

2014

- Chiang, J.C.H., Lee, S.-Y., Putnam, A.E., and **Wang, X.**, 2014. South Pacific Split Jet, ITCZ shifts, and atmospheric North-South linkage during abrupt climate changes of the last glacial period. *Earth and Planetary Science Letters* 406, 233-246.
- Frappier, A., Pyburn, J., Pinkey-Drobnis, A., **Wang, X.**, Corbett, D.R., and Dahlin, B.H., 2014. Two millennia of tropical cyclone-induced mud layers in a northern Yucatan stalagmite reveal multiple overlapping climatic hazards during the Terminal Classic Period “Megadroughts”. *Geophysical Research Letters*, doi: 10.1002/2014GL059882.
- Duan, F.C., Liu, D.B., Cheng, H., **Wang, X.**, Wang, Y.J., Kong, X.G., and Chen, S.T., 2014. A high-resolution monsoon record of millennial-scale oscillations during Late MIS3 from Wulu Cave, south-west China. *Journal of Quaternary Science* 29, 83-90.

2013

- WAIS Divide Project Members, 2013. Deglacial warming in West Antarctica driven by both local orbital and Northern Hemisphere forcing. *Nature* 500, 439-444.
- Wang, X.**, and Broecker, W.S., 2013. Long-term reworking of volcanic ash deposited in the abyssal ocean based on uranium and thorium measurements. *Journal of Volcanology and Geothermal Research* 264, 66-71.

- Stoll, H., Moreno, A., Mendez-Vicente, A., Gonzalez-Lemos, S., Jimenez-Sanchez, Dominguez-Cuesta, M.J., Edwards, R.L., Cheng, H., and **Wang, X.**, 2013. Growth rates of speleothems in NW Iberian Peninsula over the last two glacial cycles and relationship with climate. *Quaternary Research* 80, 284-290.
- Cheng, H., Edwards, R.L., Shen, C.-C., Polyak, V.J., Asmerom, Y., Woodhead, J., Hellstrom, J., Wang, Y.J., Kong, X.G., Spotl, C., **Wang, X.**, and Alexander, E.C., 2013. Improvements in ^{230}Th dating, ^{230}Th and ^{234}U half-life values, and U-Th isotopic measurements by multi-collector inductively coupled plasma mass spectrometry. *Earth and Planetary Science Letters* 371/372, 82-91.
- Cheng, H., Sinha, A., Cruz, F.W., **Wang, X.**, Edwards, R.L., d'Horta, F.M., Ribas, C.C., Vuille, M., Stoll, L.D., and Auler, A.S., 2013. Climate change patterns in Amazonia and biodiversity. *Nature Communications*, 4:1411, doi: 10.1038/ncomms2415.

2012

- Osete, M., Martin-Chivelet, J., Rossi, C., Edwards, R.L., Egli, R., Munoz-Garcia, M.B., **Wang, X.**, Pavon-Carrasco, F.J., and Heller, F., 2012. The Blake geomagnetic event recorded in an absolute-dated speleothem. *Earth and Planetary Science Letters* 353/354, 173-181.
- Cheng, H., Sinha, A., **Wang, X.**, Cruz, F.W., and Edwards, R.L., 2012. The global paleomonsoon as seen through speleothem records from Asia and the Americas. *Climate Dynamics* 39, 1045-1062.
- Cai, Y.J., Zhang, H., Cheng, H., An, Z., Edwards, R.L., **Wang, X.**, Tan, L., Liang, F., Wang, J., and Kelly, M., 2012. The Holocene Indian monsoon variability over the southern Tibetan Plateau and its teleconnections. *Earth and Planetary Science Letters* 335/336, 135-144.

2011

- Correa, D., Auler, A.S., **Wang, X.**, Edwards, R.L., and Cheng, H., 2011. Geomorphology and genesis of the remarkable Araras Ridge tufa deposit, Western Brazil. *Geomorphology* 134, 94-101.
- Strikis, N.M., Cruz, F.W., Cheng, H., Karmann, I., Edwards, R.L., Vuille, M., **Wang, X.**, Paula, M.S., Novello, V.F., and Auler, A.S., 2011. Abrupt variations in South American monsoon rainfall during the Holocene based on a speleothem record from central-eastern Brazil. *Geology* 39, 1075-1078.
- Boch, R., Cheng, H., Spotl, C., Edwards, R.L., **Wang, X.**, and Hauselmann, Ph., 2011. NALPS: a precisely dated European climate record 120-60 ka. *Climate of the Past* 7, 1247-1259.

Before 2011

- Liu, D.B., Wang, Y.J., Cheng, H., Edwards, R.L., Kong, X.G., **Wang, X.**, Hardt, B., Wu, J.Y., Chen, S.T., Jiang, X.Y., He, Y.Q., Dong, J.G., and Zhao, K., 2010. Sub-millennial variability of Asian monsoon intensity during the early MIS 3 and its analogue to the ice age terminations. *Quaternary Science Reviews* 29, 1107-1115.
- Cai, Y.J., Tan, L.C., Cheng, H., An, Z.S., Edwards, R.L., Kelly, M.J., Kong, X.G., and **Wang, X.**, 2010. The variations of summer monsoon precipitation in central China since the last deglaciation. *Earth and Planetary Science Letters* 291, 21-31.
- Cai, Y.J., Cheng, H., An, Z.S., Edwards, R.L., **Wang, X.**, Tan, L.C., and Wang, J., 2010. Large variations of oxygen isotopes in precipitation over south-central Tibet during Marine Isotope Stage 5. *Geology* 38, 243-246.
- Cheng, H., Edwards, R.L., Broecker, W.S., Denton, G.H., Kong, X.G., Wang, Y.J., Zhang, R., and **Wang, X.**, 2009. Ice age terminations. *Science* 326, 248-252.

- Domínguez-Villar, D., Fairchild, I.J., Baker, A., **Wang, X.**, Edwards, R.L., and Cheng, H., 2009. Oxygen isotope precipitation anomaly in the North Atlantic region during the 8.2 ka event. *Geology* 37, 1095-1098.
- Cheng, H., Fleitmann, D., Edwards, R.L., **Wang, X.**, Cruz, F.W., Auler, A.S., Mangini, A., Wang, Y.J., Kong, X.G., Burns, S.J., and Matter, A., 2009. Timing and structure of the 8.2 ky event inferred from $\delta^{18}\text{O}$ records of stalagmites from China, Oman and Brazil. *Geology* 37, 1007-1010.
- Cruz, F.W., Vuille, M., Burns S.J., **Wang, X.**, Cheng, H., Edwards, R.L., Karmann, I., Auler, A.S., and Seidel A., 2009. Orbitally driven east-west antiphasing of South American precipitation. *Nature Geoscience* 2, 210-214.
- Auler, A.S., Smart, P.L., **Wang, X.**, Piló, L.B., Edwards, R.L., and Cheng, H., 2009. Cyclic sedimentation in Brazilian caves: Mechanisms and paleoenvironmental significance. *Geomorphology* 106, 142-153.
- Zhang, P., Cheng, H., Edwards, R.L., Chen, F., Wang, Y., Yang, X., Liu, J., Tan, M., **Wang, X.**, Liu, J., An, C., Dai, Z., Zhou, J., Zhang, D., Jia, J., Jin, L., and Johnson, K., 2008. A test of climate, Sun, and culture relationships from an 1810-year Chinese cave record. *Science* 322, 940-942.
- Wang, X.**, Cruz, F.W., Auler, A.S., Cheng, H., and Edwards, R.L., 2008. Climate and environmental variability recorded in Brazilian speleothems. *PAGES Newsletter* 16, 31-32 (Invited).
- Liu, D., Wang, Y., Cheng, H., Edwards, R.L., Kong, X., **Wang, X.**, Wu, J., and Chen, S., 2008. A detailed comparison of Asian monsoon intensity and Greenland temperature during the Allerød and Younger Dryas events. *Earth and Planetary Science Letters* 272, 691-697.
- Shen, C.-C., Li, K.-S., Sieh, K., Natawidjaja, D., Cheng, H., **Wang, X.**, Edwards, R.L., Lam, D.D., Hsieh, Y.-T., Fan, T.-Y., Meltzner, A.J., Taylor, F.W., Quinn, T.M., Chiang, H.-W., and Kilbourne, K.H., 2008. Variation of initial $^{230}\text{Th}/^{232}\text{Th}$ and limits of high precision U-Th dating of shallow-water corals. *Geochim. Cosmochim. Acta.* 72, 4201-4223.
- Domínguez-Villar, D., **Wang, X.**, Cheng, H., Martín-Chivelet, J., and Edwards, R. L., 2008. A high-resolution Late Holocene speleothem record from Kaite Cave, northern Spain. *Quaternary International* 187, 40-51.
- Wang, Y., Cheng, H., Edwards, R.L., Kong, X., Shao, X., Chen, S., Wu, J., Jiang, X., **Wang, X.**, and An, Z., 2008. Millennial- and orbital-scale changes in the East Asian monsoon over the past 224,000 years. *Nature* 451, 1090-1093.
- Wang, X.**, Auler, A.S., Edwards, R.L., Cheng, H., Ito, E., Wang, Y., Kong, X., and Solheid, M., 2007. Millennial-scale precipitation changes in southern Brazil over the past 90,000 years. *Geophysical Research Letters* 34, L23701, doi:10.1029/2007GL031149.
- Auler, A.S., Piló, L.B., Smart, P.L., **Wang, X.**, Richards, D.A., Edwards, R.L., Neves, W.A., and Cheng, H., 2006. Taphonomy and age of Quaternary vertebrates from Brazilian caves. *Palaeogeography, Palaeoclimatology, Palaeoecology* 240, 508-522.
- Shen, C.-C., Lin, H.-T., Chu, M.-F., Yu, E.-F., **Wang, X.**, and Dorale, J.A., 2006. Measurements of natural uranium concentration and isotopic composition with permil-level precision by inductively coupled plasma-quadrupole mass spectrometry. *Geochemistry, Geophysics, Geosystems* 7, Q09005, doi:10.1029/2006GC001303.
- Wang, X.**, Auler, A.S., Edwards, R.L., Cheng, H., Ito, E., and Solheid, M., 2006. Interhemispheric anti-phasing of rainfall during the last glacial period. *Quaternary Science Reviews* 25, 3391-3403.

- Zhu, R., Liu, Q., Pan, Y., Deng, C., Zhang, R., and **Wang, X.**, 2006. No apparent lock-in depth of the Laschamp geomagnetic excursion: Evidence from the Malan loess. *Science in China (Series D-Earth Sciences)* 49, 960-967.
- Cai, Y., An, Z., Cheng, H., Edwards, R.L., Kelly, M.J., Liu, W., **Wang, X.**, and Shen, C.-C., 2006. A high-resolution absolute-dated Indian monsoon record between 53-36 ka from Xiaobailong Cave, southwestern China. *Geology* 34, 621-624.
- Cheng, H., Edwards, R.L., Wang, Y., Kong, X., Ming, Y., Kelly, M.J., **Wang, X.**, Gallup, C.D., and Liu, W., 2006. A penultimate glacial monsoon record from Hulu Cave and two-phase glacial terminations. *Geology* 34, 217-220.
- Kong, X., Wang, Y., Wu, J., Cheng, H., Edwards, R.L., and **Wang, X.**, 2005. Complicated responses of stalagmite $\delta^{13}C$ to climate change during the last glaciation from Hulu Cave, Nanjing, China. *Science in China (Series D-Earth Sciences)* 48, 2174-2181.
- Piló, L.B., Auler, A.S., Neves, W.A., **Wang, X.**, Cheng, H. and Edwards, R.L., 2005. Geochronology, sediment provenance, and fossil emplacement at Sumidouro Cave, a classic late Pleistocene paleoanthropological site in eastern Brazil. *Geoarchaeology: an International Journal* 20, 751-764.
- Wang, X.**, Auler, A.S., Edwards, R.L., Cheng, H., Cristalli, P.S., Smart, P.L., Richards, D.A., and Shen, C.-C., 2004. Wet periods in northeastern Brazil over the past 210 kyr linked to distant climate anomalies. *Nature* 432, 740-743.
- Auler, A.S., **Wang, X.**, Edwards, R.L., Cheng, H., Cristalli, P.S., Smart, P.L., and Richards, D.A., 2004. Quaternary ecological and geomorphic changes associated with rainfall events in presently semi-arid northeastern Brazil. *Journal of Quaternary Science* 19, 693-701.
- Tan, M., Qin, X., Shen, L., **Wang, X.**, Wang, Y., Li, T., Song, L., Wang, L., and Liu, D., 1999. Bioptical microcycles of laminated speleothems from China and their chronological significance. *Chinese Science Bulletin* 44, 1604-1607.
- Qin, X., Tan, M., Liu, T., **Wang, X.**, Li, T., and Lu, J., 1999. Spectral analysis of a 1000-year stalagmite lamina-thickness record from Shihua Cavern, Beijing, China, and its climatic significance. *The Holocene* 9, 689-694.
- Tan, M., Liu, T., Qin, X., **Wang, X.**, 1998. Signification chrono-climatique de speleothemes lamines de Chine du Nord. *Karstologia* 32, 1-6.

9. Book Chapters:

- Cruz, F.W., **Wang, X.**, Auler, A.S., Vuille, M., Burns S.J., Edwards, R.L., Karmann, I., and Cheng, H., 2009. Orbital and millennial-scale precipitation changes in Brazil from speleothem records. In: *Past climate variability in South America and surrounding regions: From the Last Glacial Maximum to the Holocene* (eds. Vimeux F., Sylvestre F., and Khodri M.), Springer-Verlag: *Developments in Paleoenvironmental Research Series (DPER)*, 14, 29-60.
- Wang, X.**, Edwards, R.L., Auler, A.S., Cheng, H., and Ito, E., 2007. Millennial-scale interhemispheric asymmetry of low-latitude precipitation: speleothem evidence and possible high-latitude forcing. In: *Past and Future Changes of the Ocean's Meridional Overturning Circulation: Mechanisms and Impacts* (eds. Schmittner A., Chiang J., and Hemming S.), AGU Geophysical Monograph Series V. 173, 279-294.