

## PUBLICATIONS

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### Submitted

Karvonen, J., Shi, L., Cheng, B., Similä, M., Mäkynen, M. and Vihma, T. 2016. Bohai Sea Ice Parameter Estimation Based on Thermodynamic Ice Model and Earth Observation Data. *IEEE Trans. on Geoscience and Remote Sensing*.

Wei, L., Deng, X., **Cheng, B.**, Vihma, T., Hannula, H., Qiin, T., and Pulliainen, J. 2016. The impact of meteorological conditions on snow and ice thickness in an Arctic lake. *Tellus*

Zhao, J., **Cheng, B.**, Yang, Q., Vihma, T. and Zhang, L. 2016. On landfast sea ice in March in Prydz Bay East Antarctica: Modelling and Observations. *Antarctic Science*.

Zhao, J., Yang, Q., **Cheng, B.**, Hui, F., Xie, S., Zhang, L., Li, M., Li, C. and Cheng, J. 2016. Spatial and Temporal Evolution of Landfast Ice near Zhongshan Station, Antarctica during 2011/2012. *Acta Oceanologica Sinica*

### Articles in international peer-reviewed journals (53)

Tian, Z., **Cheng, B.**, Zhao, J., Vihma, T., Zhang, W., Li, Z. and Zhang, Z. 2016 Observed and modelled snow and ice thickness in the Arctic Ocean with CHINARE buoy data. *Acta Oceanologica Sinica, conditionally accepted*.

Zeng, T., Shi, L., Mäkynen, M., **Cheng, B.**, Zou, J. and Zhang Z. 2016. Sea ice thickness analyses for the Bohai Sea using MODIS thermal infrared imagery, *Acta Oceanologica Sinica, in press*.

Lu, P., Leppäranta, M., **Cheng, B.** and Li, Z. 2016. Modeling of albedo and transmittance of ponded Arctic sea ice. *Cold Reg. Sci. Technol.*, Vol. 124, 1–10.

Yang Y., Li, Z., Leppäranta M., **Cheng B.**, Shi L. and Lei R. 2015. Model simulations of the annual cycle of the thickness of landfast sea ice in the Prydz Bay, East Antarctica, *Antarctic Science*, 1-12 ©Antarctic Science Ltd 2015, doi:10.1017/S0954102015000449.

Yang, Y., Leppäranta, M., Li, Z., **Cheng, B.**, Zhai, M., and Demchev, D. 2015. Investigation annual cycle of landfast sea ice thickness west of the New Siberian Islands, *Adv Polar Sci*, 2015, 26: 168-178, doi: 10.13679/j.advps.2015.2.00168.

Nicolaus I M., Wang, C., Gerland, S., Li N., Li Z, **Cheng B.**, Perovich, D., Granskog, M., Shi L., Lei R., Li Q., and Lu P. 2015. Advancing the understanding of variations of Arctic sea ice optical and thermal behaviors through an international research and mobility project. *Adv Polar Sci*, 2015, 26: 179-187, doi: 10.13679/j.advps.2015.2.00179

Wang, C., **Cheng, B.**, Wang, K., Gerland, S. and Pavlova, O. 2015 Modelling snow ice and superimposed ice formation in an Arctic fjord, *Polar Research* 2015, 34, 20828, <http://dx.doi.org/10.3402/polar.v34.20828>

- Shi, L., Lu, P., **Cheng, B.**, Karvonen, J., Wang, Q., Li, Z. and Han, H. 2014. Validation of Arctic sea ice concentration retrieval based on HY-2 scanning radiometer data using field observations during CHINARE-2012 and other satellite instruments. *Acta Oceanologica Sinica*, 34(3): 42–50, doi: 10.1007/s13131-015-0632-9
- Vihma, T., **Cheng, B.**, Uotila, P., Wei, L., and Qin, T. 2014. Linkages between Arctic sea ice cover, large-scale atmospheric circulation, and weather and ice conditions in the Gulf of Bothnia, Baltic Sea. *Adv Polar Sci*, 2014, 25: 289-299, doi:10.13679/j.advps.2014.4.00289
- Vihma, T., Pirazzini, R., Renfrew, I., Sedlar, J., Tjernström, M., Nygård, T., Fer, I., Lupkes, C., Notz, D., Weiss, J., Marsan, D., **Cheng, B.**, Birnbaum, G., Gerland, S., Chechin, D. and Gascard, J.-C. 2013. Advances in understanding and parameterization of small-scale physical processes in the marine Arctic climate system: a review. *Atmos. Chem. Phys.*, 14, 9403–9450, 2014 [www.atmos-chem-phys.net/14/9403/2014/](http://www.atmos-chem-phys.net/14/9403/2014/) doi:10.5194/acp-14-9403-2014.
- Cheng, B.**, Vihma, T., Rontu, L., Kontu, A., Kheyrollah Pour, H., Duguay, C. and Pulliainen, J. 2014. Evolution of snow and ice temperature, thickness and energy balance in Lake Orajärvi, northern Finland. *Tellus A* 2014, 66, 21564, <http://dx.doi.org/10.3402/tellusa.v66.21564>
- Lei, R., Li, N., Heil, P., **Cheng, B.**, Zhang, Z., and Sun, B. 2014. Multiyear sea-ice thermal regimes and oceanic heat flux derived from an ice mass balance buoy in the Arctic Ocean, *J. Geophys. Res. Oceans*, 119, doi:10.1002/2012JC008731.
- Yang, Y., **Cheng, B.**, Kourzeneva, E., Semmler, T., Rontu, L., Leppäranta, M., Shirasawa, K. and Li, Z. 2013: Modelling experiments on air–snow–ice interactions over Kilpisjärvi, a lake in northern Finland. *Boreal Env. Res.* 18: 341–358.
- Similä, M., Mäkynen, M., **Cheng, B.** and Rinne, E. 2013. Multisensor data and thermodynamic sea ice model based sea ice thickness chart with application to the Kara Sea. *Annals of Glaciology*, 54(62), 241-252.
- Cheng, B.**, Mäkynen, M., Similä, M., Rontu, R. and Vihma, T. 2013. Modelling snow and ice thickness in the coastal Kara Sea. *Annals of Glaciology*, 54(62), 105-113.
- Mäkynen, M., **Cheng, B.** and Similä, M. 2013. On the accuracy of the thin ice thickness retrieval using MODIS thermal imagery over the Arctic first year ice, *Annals of Glaciology*, 54(62), 87-96.
- Karvonen, J., **Cheng, B.**, Vihma, T., Arkett, M., and Carrieres, T. 2012. A method for sea ice thickness and concentration analysis based on SAR data and a thermodynamic model, *The Cryosphere*, 6, 1507-1526, doi:10.5194/tc-6-1507-2012.
- Semmler, T., **Cheng, B.**, Yang, Y., and Rontu, L. 2012. Snow and ice on Bear Lake (Alaska) – sensitivity experiments with two lake ice models. *Tellus A*, 64, 17339, doi: 10.3402/tellusa.v64i0.17339, 2012.
- Yang, Y., Leppäranta, M., **Cheng, B.**, and Li, Z. 2012. Numerical modelling of snow and ice thickness in Lake Vanajavesi, Finland. *Tellus A* 2012, 64, 17202, DOI: 10.3402/tellusa.v64i0.17202.

- Lei, R., Leppäranta, M., **Cheng, B.**, Heil, P., and Li, Z. 2012. Changes in ice-season characteristics of a European Arctic lake from 1964 to 2008, *Climate Change*, doi: 10.1007/s10584-012-0489-2.
- Lei, R., Zhang, Z., Ilkka, M., **Cheng, B.**, Li, Q. and Huang, W. 2012. Reflection and transmission of irradiance by snow and sea ice in the central Arctic Ocean in summer 2010, *Polar Research*, 31, 17325, DOI: 10.3402/polar.v31i0.17325.
- Lei, R., Li, Z., Li, N., Lu, P. and **Cheng B.** 2012. Crucial physical characteristics of sea ice in the Arctic section of 143°W–180°W during August and early September 2008, *Acta Oceanologica Sinica*, 31(4), 65-75.
- Lu, P., Li, Z., **Cheng, B.**, and Leppäranta, M. 2011. A parameterization of the ice ocean drag coefficient. *J. Geophys. Res.*, 116, C07019, doi:10.1029/2010JC006878.
- Yang, Q., **Cheng, B.**, Lei, R., Wang, X., Yang, Y., and Zhang, Z. 2011. Surface albedo during CHINARE2008: observation and modeling. *Acta Oceanologica Sinica* 33 (2), 42-47. (In Chinese)
- Lei, R., Li, Z., **Cheng, B.**, Yang, Q., and Li, N. 2011. Investigation of the thermodynamic processes of a floe-lead system in the central Arctic during late summer. *Adv Polar Sci*, 22(1). 10-16, doi: 10.3724/SP.J.1085.2011.00010
- Lei, R., Li, Z. **Cheng, B.**, Zhang, Z. and Heil, P. 2010. Annual cycle of landfast sea ice in Prydz Bay, east Antarctica, *J. Geophys. Res.*, 115, C02006, doi:10.1029/2008JC005223.
- Lei, R., Li, Z., **Cheng, B.**, Yang, Q. and Li, N. 2010. Observation on the thermodynamic mechanism of the floe-lead system in the Arctic Ocean during summer. *Chinese Journal of Polar Science*, 22(3), 286-295. (in Chinese)
- Wang, H., Heygster, G., Han, S. and **Cheng, B.** 2009. On Arctic Multiyear Ice Concentration Retrieval Based on AMSR-E 89GHz Data, *Chinese Journal of Polar Research*. 21(3), 186-196.
- Lu, P., Li, Z., **Cheng, B.**, Lei, R. and Zhang, R. 2009. Sea ice surface features in Arctic summer 2008: aerial observations. *Remote Sensing of Environment* DOI information: 10.1016/j.rse.2009.11.009
- Shi, L., Bai, Y, Li, Z., **Cheng, B.**, and Leppäranta, M. 2009. Preliminary results on relationship between thermal diffusivity and porosity of sea ice in the Antarctic. *Chinese Journal of Polar Research*. Vol. 20. No.1, 72-80.
- Cheng, B.**, Vihma, T., Zhang, Z., Li, Z. and Wu, H. 2008. Snow and sea ice thermodynamics in the Arctic: Model validation and sensitivity study against SHEBA data, *Chinese Journal of Polar Research*. Vol. 19, No. 2, 108-122.
- Cheng, B.**, Zhang, Z., Vihma, T., Johansson, M., Bian, L., Li, Z. and Wu, H. 2008, Model experiments on snow and ice thermodynamics in the Arctic Ocean with CHINARE 2003 data, *J. Geophys. Res.*, 113, C09020, doi:10.1029/2007JC004654.
- Mäkynen, M., **Cheng, B.**, Similä, M., Vihma, T. and Hallikainen, M. 2007. Comparisons between SAR backscattering coefficient and results of a thermodynamic snow/ice model for the Baltic Sea land-fast sea ice. *IEEE Trans. Geosci. Remote Sens.*, 45(5), 1131–1141.

- Li, Z., Zhao, H., Feng, E., **Cheng, B.**, and Lu, P. 2007. Snow water content estimation from measured snow temperature. *Chinese Journal of Polar Science*, 18(1), 1-7.
- Guo, J., **Cheng, B.**, Sun, B., Cui, X. and Tian, G. 2007. Application of Electromagnetic-induction Technique in the Baltic Sea Ice Thickness Measurement. *Chinese Journal of Polar Science*, 19(2), 99-110.
- Cheng, B.**, Vihma, T., Pirazzini, R., and Granskog, M. 2006. Modeling of superimposed ice formation during spring snowmelt period in the Baltic Sea. *Ann. Glaciol.*, 44, 139-146.
- Pirazzini, R., Vihma, T., Granskog, M., and **Cheng, B.** 2006. Surface albedo measurements over sea ice in the Baltic Sea during the spring snowmelt period. *Ann. Glaciol.*, 44, 7-14.
- Granskog, M., Vihma, T., Pirazzini, R., and **Cheng, B.** 2006. Superimposed ice formation and surface fluxes on sea ice during the spring melt-freeze period in the Baltic Sea. *J. Glaciol.* 52(176), 119-127.
- Zhang, Z., **Cheng, B.**, Launiainen, J., Wu, H., and Liu, Y. 2006. Inter-comparisons of thermodynamic sea ice modeling results by using various parameterizations of radiative fluxes. *Acta Oceanologica Sinica*. 25(1). 1-7.
- Li, Z., Zhang, Z., Lu, P., Dong, X., Chen, Z., and **Cheng, B.** 2005. Some Parameters on Arctic Sea Ice Dynamics from the Expedition in the summer of 2003. *Acta Oceanologica Sinica*, 24(6), 54 - 61.
- Cheng, B.**, Vihma, T. and Launiainen, J 2003. Modelling of the superimposed ice formation and sub-surface melting in the Baltic Sea. *Geophysica*, 39(1-2), 31-50.
- Cheng, B.** and Vihma, T. 2003. Idealized study of a 2D coupled sea ice/atmosphere model during warm air advection. *J. Glaciol.* 48(162), 425-438.
- Vihma, T., Uotila, J., **Cheng, B.**, and Launiainen, J. 2002. Surface heat budget over the Weddell Sea: Buoy results and model comparisons. *J. Geophys. Res.* 107(C2) 3013, doi:10.1029/2000JC000372.
- Cheng, B.** 2002. On the numerical resolution in a thermodynamic sea ice model. *J. Glaciol.* 48(161), 301-311.
- Cheng, B.**, Launiainen, J., Vihma, T. and Uotila, J. 2001. Modelling sea ice thermodynamics in BALTEX-BASIS. *Ann. of Glaciology*, 33, 243-247.
- Launiainen, J., **Cheng, B.**, Uotila, J. and Vihma, T. 2001. Turbulent surface fluxes and air-ice coupling in the Baltic-Air-Ice Study (BASIS). *Ann. of Glaciology*, 33, 237-242.
- Wang, Y., Li, H. and **Cheng, B.** 1999. Cluster analysis of ice condition in the Bohai Sea. *Marine Forecast*. 16(3): 114-122. (In Chinese)
- Launiainen, J. and **Cheng, B.** 1998. Modelling of ice thermodynamics in natural water bodies. *Cold Reg. Sci. Technol.*, 27(3), 153-178.
- Liu, C., **Cheng, B.**, Cheng, X. and Zhang, S. 1998. A case study on simulating runoff with the

BATS model. *Hydrology*. (1): 8-13. (In Chinese)

**Cheng, B.**, Liu, C. and Wu, H. 1996. The application and interpretation of numerical sea ice forecasts to offshore exploration and ice engineering. *China Offshore Oil and Gas (engineering)*. 8(1): 35-42. (In Chinese)

**Cheng, B.** and Zhang, Z. 1996. A data transmission system for operational numerical sea ice forecasts. *Marine Forecast*. 13(1): 41-45. (In Chinese)

**Cheng, B.** 1996. The conservative difference scheme and numerical simulation of a one-dimensional thermodynamic sea ice model. *Marine Science Bulletin*. 15(4): 8-19. (In Chinese)

**Cheng, B.** 1992. On the numerical simulation of Korteweg-De-Vries (KDV) equation with the Petrov-Galerkin finite element method. *Numerical Calculations and Computer Application*. (1): 73-80. (In Chinese)

**Cheng, B.**, Wu, H. and Bai, S. 1991. Objective verification on numerical prediction of storm surge. *Marine Science Bulletin*. 10(1): 8-12. (In Chinese)

#### Articles in peer-reviewed conferences proceedings (38)

Wei, L., Qin, T. Uotila, P., Vihma, T. and Cheng B. Analyses of summer cyclone activities over the Arctic Ocean **ISOPE Conference Proceedings (coming)**

Cheng, B., Tian, Z., Zhao, J., Vihma, T. and Li, Z. 2016 Observed and Modelled snow and ice thickness in Chuchchi Sea with CHINARE 2014 data. Proceedings of the 2<sup>nd</sup> Pan- Eurasian Experiment (PEEX) Conference and the 5th PEEX Meeting. Report series in Aerosol science No, **TBD**

Cheng, B., Zhao, J. and Vihma, T. 2015. Detection of snow and ice thickness from temperature profiles of unmanned ice mass balance buoys. Proceedings of the 30<sup>th</sup> International Symposium on Okhotsk Sea and Sea Ice, 15 - 19 February, 2015 Mombetsu, Hokkaido, Japan.

Cheng, B., Vihma, T. and Zhao, J. 2015. Analyses snow and ice thickness from high resolution thermistor temperature profiles, Proceedings of the 1st Pan- Eurasian Experiment (PEEX) Conference and the 5th PEEX Meeting. Report series in Aerosol science N:o 163, P 99 -104

Cheng, B., Qin, T., Wei, L., Kontu, A., Hannula, H-R., Vihma, T. and Ye, X. 2014. The Impact of Air Temperature and Precipitation on Formation of Lake Ice in Northern Finland. Proceedings of the 22<sup>nd</sup> IAHR International Symposium on Ice, Singapore, August 11 to 15, 2014. No. 1263.

Shi, L., Cheng, B., Vihma, T., Liu, Y. and Zhao, Q. 2014. Thermodynamic sea ice growth in the Bohai Sea: a basin scale modelling investigation. Proceedings of the 22<sup>nd</sup> IAHR International Symposium on Ice, Singapore, August 11 to 15, 2014. No. 1242.

Shi, L., Lu, P., Cheng, B., Li, Z., Wang, Q., Lu, Y. and Ye, X. 2014. Validation of sea ice concentration obtained from the Chinese Marine Satellite (HY-2) microwave radiometer instrument. Proceedings of the 22<sup>nd</sup> IAHR International Symposium on Ice, Singapore, August 11 to 15, 2014. No. 1238

Wei, L., Qin, T., Vihma, T. and Cheng, B. 2014. Cyclones in the Arctic Ocean and their effect on sea ice. Proceedings of the 22<sup>nd</sup> IAHR International Symposium on Ice, Singapore, August 11 to 15, 2014. No. 1266.

Leppäranta, M., Yang, Y., Li, Z. and Cheng, B. 2014. Modelling the lake ice season for climate investigations. Proceedings of the 22<sup>nd</sup> IAHR International Symposium on Ice, Singapore, August 11 to 15, 2014. No. 1124

Shi, L., Cheng, B., Wang, Q., Karvonen, J. and Zou, B. 2014. On Ice Concentration Retrieval using Radiometer data from Chinese Marine Satellite (HY-2): validation and Arctic application. Proceedings of the 29<sup>th</sup> International Symposium on Okhotsk Sea and Sea Ice, 16 - 20 February, 2014 Mombetsu, Hokkaido, Japan.

Karvonen, J., Cheng B. and Vihma, T. 2013. Estimation of sea ice parameters based on X-band SAR data and thermodynamic sea/ice modelling for the Caspian Sea. In POAC' 13 proceeding, June 9-13, 2013, Espoo, Finland.

Wang C., Wang K., Gerland S., Cheng B. and Pavlova, O. 2013. Study of Kongsfjorden fast ice evolution using a one-dimensional model. Proceedings of the NySMAC Seminar from the 10th Ny-Ålesund Seminar, Lillestrøm, Kjeller, Norway, 25-26 October 2011, Stebel, K. (ed.).

Mäkynen, M., Similä, M., Karvonen, J., Cheng, B., Rinne, E. and Seinä, A. 2012. Sea ice remote sensing R&D at Finnish Meteorological Institute. Finnish Remote Sensing Days 2012, Book of Abstracts, Department of Geosciences and Geography C7, University of Helsinki, p. 37, 2012.

Wang, C., Gerland, S., Li, N., Li, Z., Cheng, B., Nicolaus, M., Perovich, D., Granskog, M., Shi, L., Lei, R., Li, Q., Lu, P. and Haapala, J. 2012. An International Research and Mobility Exchange Project: Advance Modeling and Observing Solar Radiation of Sea Ice (AMORA), 21st IAHR International Symposium on Ice "Ice Research for a Sustainable Environment", Li and Lu (ed.) Dalian, China, June 11 to 15, 2012 © 2012 Dalian University of Technology Press, Dalian, ISBN 978-7-89437-020-4

Similä, M., Mäkynen, M., Cheng, B., Rinne, E. and von Lerber, 2012. A multi-sensor and modeling approach for the spatial distribution of sea ice thickness in the seasonal sea ice region Earth Observation and Cryosphere Science Conference 13- 16 November 2012, Frascati, Italy

Similä, M., Mäkynen, M., Cheng, B. Rinne, E. 2012. Multisensor and thermodynamic sea ice model based sea ice thickness charts over the Kara and Barents Seas during the winter 2008-2009 International symposium on Seasonal snow and Ice, 28 May - 1 June, 2012, Lahti, Finland, Book of Abstract, CD ROM

Similä, M., Mäkynen, M. and Cheng, B. 2010. Numerical modeling as an aid in the classification of sea ice satellite data IICWG/S4D DA Workshop III May 2010, SMHI, Norrköping, Sweden.

Mäkynen, M., Similä, M. and Cheng, B. 2010. On level ice thickness retrieval in the Kara Sea using MODIS and ENVISAT ASAR data Proc. ESA Living Planet Symposium, Bergen, Norway, ESA SP-686, 8 pp., 2010.

Mäkynen, M., Similä, M. and Cheng, B. 2010. On level ice thickness retrieval in the Kara Sea using

MODIS and ENVISAT ASAR data and thermodynamic modeling Finnish Remote Sensing Days 2010, Otaniemi, Espoo, oral presentation and abstract.

Mäkynen, M., Similä, M., Cheng, B., Laine, V. and Karvonen, J. 2010. Sea ice thickness retrieval in the Baltic Sea using MODIS and SAR data Proc. SeaSAR 2010, Frascati, Italy, 25-29 January 2010, ESA SP-679, 8 pp., April 2010.

Similä, M., Mäkynen, M. and Cheng, B. 2010. Sea ice type classification using SAR-MODIS data and thermodynamic modeling, Symposium Oceans from Space 2010, Venice, Italy, April 2010.

Yang, Y., Li, Z., Leppäranta, M., Cheng, B. and Lei, R. 2010 Estimation of oceanic heat flux under landfast sea ice in Prydz Bay, East Antarctica. Proceedings of the 20th IAHR International Symposium on Ice, Lahti, Finland, no.47, 2010.

Yang, Q., Cheng, B., Wang, X., Lei, R. and Zhang, Z. 2010. Surface Albedo During CHINARE2008: Observation and Modelling, Proceedings of the 20th IAHR International Symposium on Ice, Lahti, Finland, no.45, 2010.

Similä, M., Mäkynen, M. and Cheng, B. 2010. Sea ice type thickness chart based on the SAR and MODIS data. 38th COSPAR Scientific Assembly, Abstract CD, Bremen, Germany.

Similä, M., Mäkynen, M., Cheng, B. and Laine, V. 2009. MODIS-based snow/sea ice surface temperature and sea ice thickness 10th Meeting of the International Ice Charting Working Group, Geneva, Switzerland, 12-15 October 2009.

Karvonen J., Cheng, B., Similä, M. and Hallikainen, M. 2008. Baltic Sea ice thickness chart based on thermodynamic snow/ice model, C-Band SAR classification and ice motion detection. In *Proc. IGARSS'08*, CD-ROM.

Cheng, B., Riihelä, A., Andersson, K. and Manninen, T. 2007. The Surface Albedo Product (SAL) of CM-SAF in Modeling of Sea Ice Mass Balance. In Proc. EUMETSAT/AMS'07 CD-ROM.

Karvonen J., Cheng, B. and Similä, M. 2007. Baltic Sea ice thickness charts based on Thermodynamic ice model and SAR data. In *Proc. IGARSS'07*, CD-ROM.

Mäkynen, M., Cheng, B., Similä, M., Vihma, T. and Hallikainen, M. 2007. Interpretation of C-band SAR Backscattering Coefficient Time Series for the Baltic Sea Landfast Sea Ice Using a 1-D Thermodynamic Snow/Ice Model. In *Proc. IGARSS'07*, CD-ROM.

Pirazzini, R., Vihma, T., Granskog, M. and Cheng, B. 2007. Surface radiation budget and cloud radiative forcing on sea ice during the spring snowmelt period in the Baltic Sea. In: Isemer, H.-J. (ed.): Fifth Study Conference on BALTEX, Kuresaare, Saaremaa, Estonia, 4-8 June 2007. International BALTEX Secretariat Publication No. 38. ISSN 1681-6471, p. 144-145.

Cheng, B., Zhang, Z., Vihma, T., Bian, L., Li, Z. and Launiainen, J. 2005. Thermodynamics of snow and sea ice during Arctic summer in CHINARE03. - In: Climate and Cryosphere (CliC) First Science Conference, 11-15 April, 2005, Beijing, China: Poster abstracts.

Zhang, X., Cheng, B., Vihma, T. and Walsh, W. 2003. Air-ice interactions during the SHEBA deployment in a 2-dimensional coupled model. - In: ACSYS Final Science Conference, St.

Petersburg, Russia, 11-14 November 2003: book of abstracts: poster presentations: 206.

Cheng, B., Vihma, T. and Launiainen, J. 2003. Modelling of superimposed ice formation and sub-surface melting in the Baltic Sea. In: The 18<sup>th</sup> International Symposium on Okhotsk Sea and Sea Ice. 33-40.

Launiainen, J., Cheng, B., Uotila, J. and Vihma, T. 2000. Turbulent surface fluxes and air-ice coupling in BASIS. In: The 15<sup>th</sup> International Symposium on Okhotsk Sea and Sea Ice. The 2<sup>nd</sup> Ice Scour & Arctic Marine Pipelines Workshop: 286-294.

Cheng, B. and Launiainen, J. 1999. Thermodynamic modelling of sea ice growth in the Baltic Sea. In Järvet, A. (ed.), Publications of Second Workshop on the Baltic Sea ice Climate, Otepää, Estonia, September, 2-5, 1996. -Publications, Instituti Geographici Universitatis, Taruensis 84: 107-116.

Cheng, B., Seinä, A., Vainio, J., Kalliosaari, S., Grönvall, H. and Launiainen, J. 1999. Numerical sea ice forecasts in the Finnish Ice Service. In: Tuhkuri, J. and K. Riska (eds), POAC'99: Proceedings of the 15<sup>th</sup> International Conference on Port and Ocean Engineering under Arctic conditions, Espoo, Finland, August 23-27, 1: 131:140.

Liu, C., Cheng, B. and Cheng, X. 1995. The Preliminary Study on Water and Energy Exchange in Huaihe River Basin. In: Proceeding of the 2<sup>nd</sup> International Study Conference on GEWEX in Aisa and GAME, Pattaya, Thailand, March 6-10, 1995: 291-294

Cheng, B., Yang, S. and Bai, S. 1992. Operational system of numerical sea ice prediction in the Bohai Sea. Proceedings of the 7<sup>th</sup> International Symposium on Okhotsk Sea and Sea Ice, 2 - 5 February 1992, Mombetsu, Hokkaido, Japan. P55-58.

### **Other scientific publications (22)**

Cheng, B. 2010. Sensitivity of atmospheric models to sea ice albedo. EUMETSAT Satellite Application Facility on Climate Monitoring Visiting Scientist Report, CDOP VS Study No. 2. [http://www.cmsaf.eu/bvbw/generator/CMSAF/Content/Publication/vs\\_pdf/CLM\\_VS08\\_03,templateId=raw,property=publicationFile.pdf/CLM\\_VS08\\_03.pdf](http://www.cmsaf.eu/bvbw/generator/CMSAF/Content/Publication/vs_pdf/CLM_VS08_03,templateId=raw,property=publicationFile.pdf/CLM_VS08_03.pdf)

Karvonen, J., B. Cheng and S. Markku. 2008. Evaluation of the Operational HIGHTSI Thermodynamic Ice Model in the Baltic Sea for the Winter 2007–2008. Proceeding of the 6<sup>th</sup> Baltic Sea ice workshop.

Karvonen, J., B. Cheng and S. Markku. 2008. Ice Thickness Charts Produced by C-Band SAR Imagery and HIGHTSI Thermodynamic Ice Model. Proceeding of the 6<sup>th</sup> Baltic Sea ice workshop.

Cheng, B. 2008. Validation of the satellite-based albedo over sea ice and vegetation field during the melting season. A Finnish Meteorological Institute (FMI) visiting scientist (VS) activity in the context of the SAF on Climate Monitoring, Deliverable report.

Cheng, B. 2007. The impact of surface albedo on sea ice mass balance. EUMETSAT Satellite Application Facility on Climate Monitoring Visiting Scientist Report. [http://www.cmsaf.eu/bvbw/generator/CMSAF/Content/Publication/vs\\_pdf/SAL\\_Cheng\\_VS\\_final\\_report\\_2007,templateId=raw,property=publicationFile.pdf/SAL\\_Cheng\\_VS\\_final\\_report\\_20](http://www.cmsaf.eu/bvbw/generator/CMSAF/Content/Publication/vs_pdf/SAL_Cheng_VS_final_report_2007,templateId=raw,property=publicationFile.pdf/SAL_Cheng_VS_final_report_20)



[07.pdf](#)

Cheng, B., T. Vihma, R. Pirazzini, M.A. Granskog, J. Launiainen. 2005. Modelling snow and sea-ice thermodynamics during the Arctic summer and Baltic Sea spring. - In: SIMBA Workshop: Bridging Regional to Global Scales: Report from National Science Foundation Sponsored Workshop held at the Applied Physics Laboratory, Univ. Washington, Seattle, WA, February 28th - March 2nd 2005: Appendix 2: 67-70.

Cheng, B., Launiainen, J. and Vihma, T. 2003. Sea ice thermodynamics modelling based on BASIS98 and BASIS99 data. -Report series in Geophysics, Division of Geophysics, University of Helsinki. No. 46, 55 -64.

Launiainen, J., Cheng, B., Uotila, J. and Vihma, T. 2001. Turbulent surface fluxes and air-ice coupling. -Final report on the Baltic Air-Ice-Sea Study (BASIS). International BALTEX Secretariat, Publication (19): 42-54.

Cheng, B., Launiainen, J., Vihma, T. and Uotila, J. 2001 Modelling of sea ice thermodynamics. - Final report on the Baltic Air-Ice-Sea Study (BASIS). International BALTEX Secretariat, Publication (19): 179-189.

Vihma, T., Uotila, J., Cheng, B. and Launiainen, J. 2000. Observation and modelling of the surface heat balance in the Weddell Sea. In: The 15<sup>th</sup> International Symposium on Okhotsk Sea and Sea Ice. The 2<sup>nd</sup> Ice Scour & Arctic Marine Pipelines Workshop: 321-328.

Vihma, T., Pirazzini, R., Cheng, B. and Launiainen, J. 2000. Numerical modelling of the atmospheric boundary layer. -Final report on the Arctic Radiation and Turbulence Interaction Study (ARTIST): 50-63.

Nardino, M., Pirazzini, R., Georgiadis, T., Levizzani, V., Vihma, T., Cheng, B., Launiainen, J., Calzolari, F., Ravegnani, F., Trivellone, G., and Bonafé, U.: 2000, 'Ground based radiation and turbulence measurements at Ny Alesund (Svalbard): First data analysis and modelling. Polar Atmospheres, Rep. No PAS-1/2000, 92 pp.

Launiainen, J., Cheng, B., Uotila, J. and Vihma, T. 2000. BASIS and air-ice coupling. In: Gustafsson, N. (ed.) Parameterization of surface fluxes, atmospheric planetary boundary layer and ocean mixed layer turbulence for BRIDGE: what can we learn from field experiment? International BALTEX Secretariat, Publication (17): 87-91.

Launiainen, J., Cheng, B., Uotila, J. and Vihma, T. 1999. Air-ice coupling and thermodynamic modelling of sea ice. In: Pettersson, H. & Rontu, L. (eds), Workshop on Modelling of the Marine-Atmospheric Boundary Layer: proceedings,- Meri-Report Series of the Finnish Institute of Marine Research. No. 40: 33-36.

Launiainen, J., Vihma, T., Uotila, J. and Cheng, B. 1998. Finnish sea ice and atmosphere-ocean heat exchange studies in the Weddell Sea. -iAnZone, 5<sup>th</sup> coordination Meeting, Oracle Arizona, 1-5 December 1997, Lamont-Doherty earth Observatory Technical report # 98-2:59-64.

Cheng, B. and Launiainen, J. 1998. A one-dimensional thermodynamic air-ice-water model: technical and algorithm description report. In: Meri-Report Series of the Finnish Institute of Marine Research. No. 37: 15-35.

Cheng, B. 1995. Thermal interaction between the atmospheric boundary layer and the ice. In: Numerical Sea Ice Prediction 1994/95 -Report of NRCMEF: 60-69 (in Chinese).

Launiainen, J. and Cheng, B. 1995. A simple non-iterative algorithm for calculating Turbulent Bulk Fluxes in diabatic conditions over water, snow/ice and ground surface. -Report series in Geophysics, Department of Geophysics, University of Helsinki. No. 33, 15p.

Cheng, B. and Launiainen, J. 1994. Use of atmospheric model (HIRLAM) data as input for marine studies and models. Internal Report of FIMR, No.14, 9p.

Cheng, B. and Launiainen, J. 1994. Atmospheric boundary-layer model output coupled with a sea ice model. In: Vihma, T. (ed.) Evening Sessions of the Summer School on Physics of Ice -covered Seas, Savonlinna, Finland, 6-17, June, 1994. -Report series in Geophysics, Department of Geophysics, University of Helsinki. No. 28: 33-34.

Cheng, B., Wang, Z. and Wu, H. 1991. Data report of the Liaodong Bay ice expeditions in winter 1988/89 and 1989/90. In: Numerical Sea Ice Prediction 1989/90 -Report of NRCMEF: 167-195 (in Chinese).

Cheng, B. 1991. A one dimensional thermodynamic sea ice model of the Bohai Sea and its numerical simulation. In: Numerical Sea Ice Prediction 1989/90 -Report of NRCMEF: 96-109 (in Chinese).

### **Monographs published (2)**

Cheng, B. 1999. Calculations of sea ice thermodynamics by an ice model coupled with the atmospheric boundary layer. -Licentiate thesis, Department of Geophysics, University of Helsinki. 85p.

Cheng, B. 2002. On Modelling ice thermodynamics and air-ice coupling of the Bohai Sea and the Baltic Sea. -Ph.D thesis, Finnish Institute of Marine Research -Contributions. No. 5, 38p.