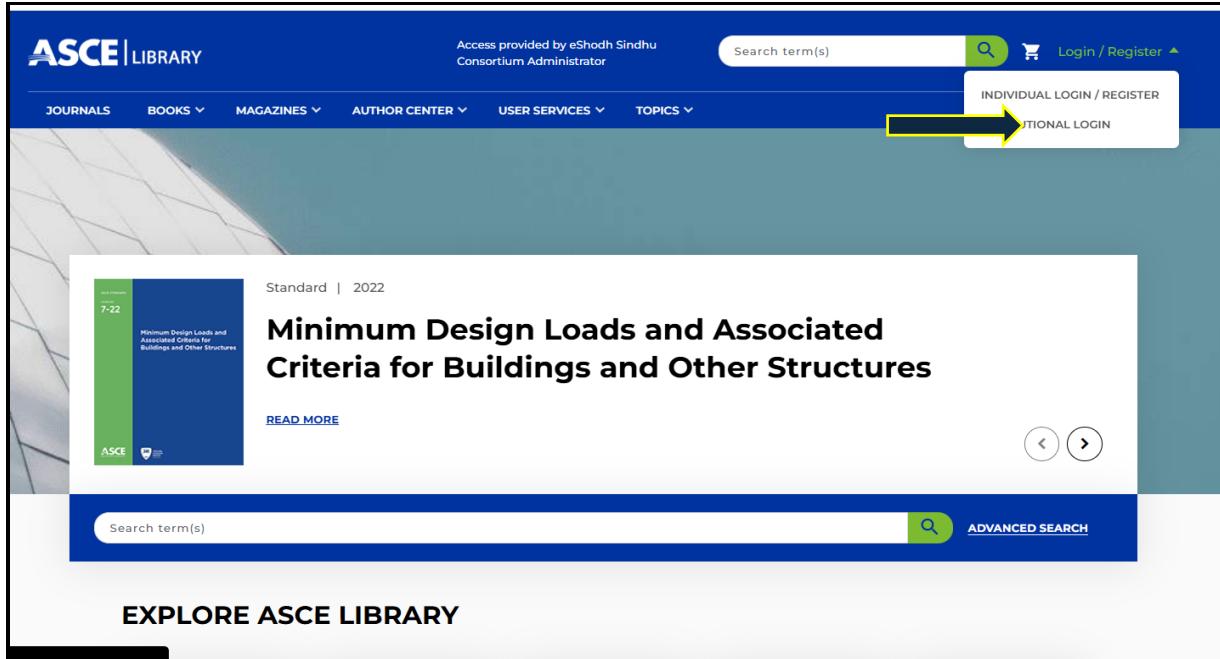


How to access e-resources by Institutional Login directly from a publisher's website?

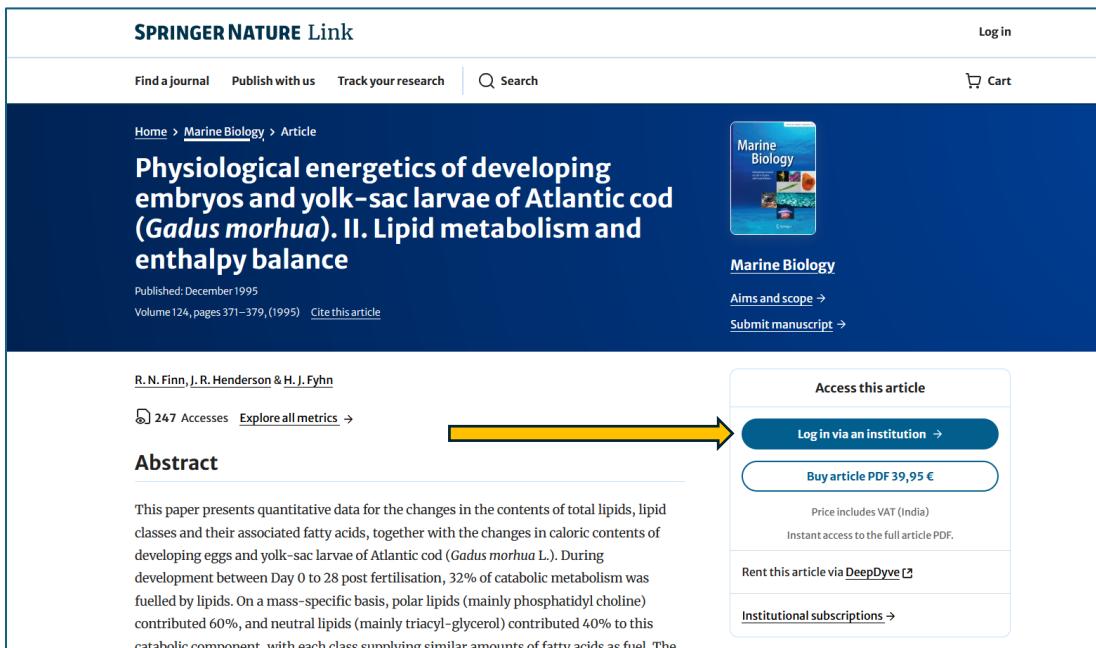
If you have directly visited any ONOS subscribed publisher website, look for the login option as mentioned in below screenshot:

Option - 1: Click on Login/Register. Select “**Institutional Login**”.



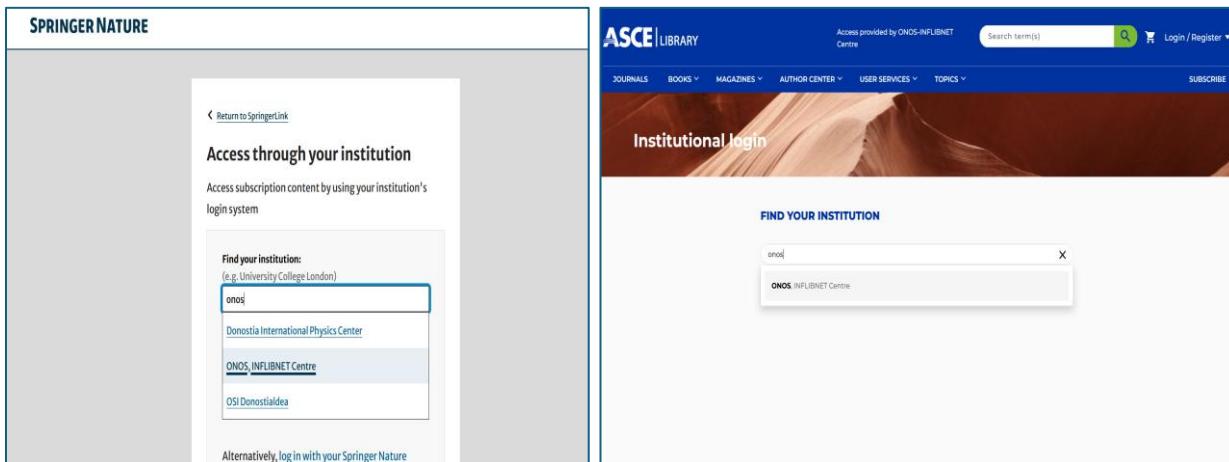
The screenshot shows the ASCE Library homepage. At the top right, there is a 'Login / Register' button with a dropdown menu. The 'INDIVIDUAL LOGIN / REGISTER' option is highlighted with a yellow arrow. Below the header, there is a featured article for 'ASCE 7-22 Minimum Design Loads and Associated Criteria for Buildings and Other Structures'. The main search bar and an 'ADVANCED SEARCH' link are also visible.

Option – 2: If you are accessing any journal article which is asking for Login/Purchase option, look for the option as “**Institutional Login**” and follow the instructions as below:



The screenshot shows a Springer Nature journal article page for 'Marine Biology'. The article title is 'Physiological energetics of developing embryos and yolk-sac larvae of Atlantic cod (*Gadus morhua*). II. Lipid metabolism and enthalpy balance'. The page includes a 'Log in' link at the top right, a search bar, and a 'Cart' link. Below the article title, there is a 'Marine Biology' journal cover thumbnail and links for 'Aims and scope' and 'Submit manuscript'. On the right side, there is a sidebar with 'Access this article' options, including 'Log in via an institution' (which is highlighted with a yellow arrow) and 'Buy article PDF 39,95 €'. The sidebar also includes links for 'Price includes VAT (India)', 'Instant access to the full article PDF.', 'Rent this article via DeepDyve', and 'Institutional subscriptions'.

Search for the “ONOS” in the list of institutions and select the matching option. The Login page will be displayed.



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Extreme Wind Speed Map for Mainland China Considering the Directional Effect

Authors: Xu Hong, Tianle Chen, Sheng Wang, Fan Kong, and Maofang Liu AUTHOR AFFILIATIONS

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15

PDF

Abstract

This study proposes a framework for mapping the extreme wind speed for mainland China considering the directional effect. To this end, long-term observations of the daily maximum surface wind speed and associated wind direction from 188 meteorological stations across mainland China are collected. First, the marginal probability distribution function (PDF) of the daily maximum wind speed and the wind direction is modeled by fitting the observed data to several candidate probability distributions and selecting the best-fit model using the Akaike Information Criterion (AIC). The results indicate that at most meteorological stations, the Gumbel distribution is the best-fit model for the marginal PDF of the daily maximum wind speed, and the third-order Von Mises distribution is the best-fit model for the wind direction. Second, the joint probability distribution function (JPDF) for the daily maximum wind speed and wind direction is modeled by considering several candidate

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Extreme Wind Speed Map for Mainland China Considering the Directional Effect

Xu Hong¹, Tianle Chen², Sheng Wang³, Fan Kong⁴, and Maofang Liu⁵

Abstract This study proposes a framework for mapping the extreme wind speed for mainland China considering the directional effect. To this end, long-term observations of the daily maximum surface wind speed and associated wind direction from 188 meteorological stations across mainland China are collected. First, the marginal probability distribution function (PDF) of the daily maximum wind speed and the wind direction is modeled by fitting the observed data to several candidate probability distributions and selecting the best-fit model using the Akaike Information Criterion (AIC). The results indicate that at most meteorological stations, the Gumbel distribution is the best-fit model for the wind direction. Second, the joint probability distribution function (JPDF) for the daily maximum wind speed and wind direction is modeled by considering several candidate joint distributions, including Frank, Gumbel, and Frank-Gumbel joint probability distribution models. The AIC analysis of the JPDF models shows that the Frank-Gumbel joint probability distribution is the best among the candidate models. Third, the wind speeds associated with a 50-year return period in 16 wind directions are estimated based on the best-fit marginal PDF and JPDF of daily maximum wind speed and wind direction, and the extreme wind speed map is further derived by using the Kriging method. Comparing the extreme wind speeds considering the directional effect to those estimated by the data in all directions indicates that neglecting the directional effect generally results in inaccurate extreme wind speed. DOI: 10.1061/(ASCE)1084-0699.1409. © 2025 American Society of Civil Engineers.

Author keywords: Extreme wind speed; Joint distribution; Wind speed and direction; Copula functions.

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For instance, the Chinese Load Code for Buildings [GB 50009 (Chinese Standard 2012)] defines the basic design wind speed as the 50-year return period value of the 10-min mean wind speed at a 10-m height in an open area.

Wind speed and wind speeds, modeling the probability distribution of the largest yearly wind speed is of crucial importance. In this regard, commonly adopted probability models used to describe the probability distribution of wind speeds include the Gumbel distribution (Type I extreme value), Frechet distribution (Type II extreme value), Weibull distribution (Type III extreme value), and lognormal distribution (Carr et al. 2009; Palitakof et al. 1999; Zhou et al. 2010; Simon and Heckert 1996). Using statistical analysis of hourly average wind speed data in Nevada, Spain, Germany, and the United States, the lognormal distribution is superior to the Weibull distribution. Cakici (2004) used two-parameter Rayleigh and Weibull distributions to fit hourly average wind speed data over a year and found that the Weibull distribution can more accurately predict wind speeds. By using multiple probability distribution models, Zhou et al. (2010) conducted a comprehensive assessment of wind speed data from five representative stations in North Dakota in the United States and pointed out that the PDF based on the maximum entropy principle exhibits good flexibility and can fit the empirical distribution patterns of wind speed data. Based on daily extreme wind speed data in Dali, China, Li et al. (2019) pointed out that the Gumbel distribution has better goodness of fit without considering the influence of

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