

## **SIPROL®-Wave-Hindcasting-v01**

DEEP-WATER SPECTRAL WAVE DATABASE



**SIPROL®-Wave-Hindcasting-v01** is a deep-water spectral wave database containing information off the American Continent's West Coast, particularly in Chile, with a time range that covers from 1980 to 2020.

This database is a suitable, relevant and high-quality tool for use in all types of wave studies and their derivatives, to name a few: characterizations of mean operational and extreme climate, maneuvering studies, analysis and trend studies, among others.

Among the main features of **SIPROL®-Wave-Hindcasting-v01** are:

1. The modeling scheme used to create **SIPROL®-Wave-Hindcasting-v01** makes use of reanalyzed forcing data, which guarantees statistical and spatial consistency, compared to other forcing data used for similar purposes.
2. The database modeling process not only considers the interaction between the ocean and the atmosphere through the wind, but also the effect of sea ice concentrations on the generation and propagation of waves, which has a superlative impact on waves that reach the American Continent's West Coast, particularly Chile in the winter season.
3. The database does not have assimilations of any kind. **SIPROL®-Wave-Hindcasting-v01** has been calibrated and subsequently validated with satellite information in the Pacific Ocean Basin and instrumental information from buoys located off the Chilean Coast. To control possible over or underestimations in the results, the modeling scheme includes an adjustment of parameterizations and dimensionless parameters of processes that describe: i) the energy transfer dynamics between the atmosphere and the ocean, ii) the energy transfer processes within the wave spectrum, and iii) energy dissipation mechanisms. This reveals the experience, conceptual mastery and control that SIPROL SpA has over the complex phenomena that condition the wave generation and propagation mechanisms.
4. Unlike other sources of long-term wave information, **SIPROL®-Wave-Hindcasting-v01** provides two-dimensional spectra (frequency and direction) at 188 points located off the American Continent's West Coast. These spectra represent the multimodal features that can occur along the coast.

**SIPROL®-Wave-Hindcasting-v01** is relevant for different actors who carry out their work in relation to the coastline, to name a few: consulting companies in the field of maritime, coastal and port engineering, companies in the maritime port sector, among others.

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