meteoNEX

NEXT-GEN CLIMATE INTELLIGENCE: AI DYNAMICAL HYBRID SUBSEASONAL-TO-SEASONAL PREDICTION AND SERVICES

Founder: Prof. Mengqian LU - HKUST

Market is READY

Enterprises Have Previously Had a Lagging Understanding of Meteorological Forecasting

There Have Been No Truly Outstanding Seasonal-Term Meteorological Forecasting Products on the Market

Market Driven by National Policies

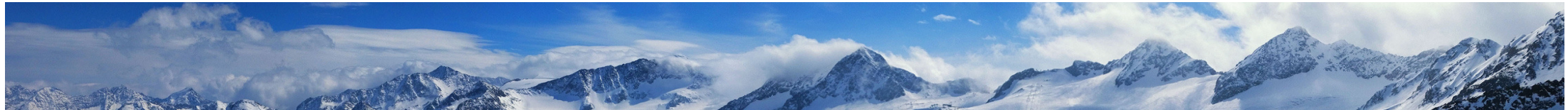
Frequent Extreme Weather Events

Enterprises' Current Awakening Awareness – **Meteorological Factors Enter Strategic Vision**

meteoNEX

AI Dynamical Hybrid Subseasonal-to-Seasonal Prediction and Services

Make Meteorological Factors Not Just Reference Information, But a Direct Variable Impacting Strategic Decisions



DIGITAL CONTINENTS LIMITED

Industry Application

Industry	Urban Resilience	Agriculture	Renewable Energy	Low-Altitude Economy	Navigation (Arctic)
Weather/Synoptic (up to 7 days)	Issue warnings or evacuation	Hazard mangement	Power generation	Issue weather alerts	Plan navy ship sorties
Subseasonal to seasonal (S2S, 2 – 8 weeks)	Prepare emergency supplies	Schedule planning, irrigate and apply nutrients	Power grid planning	Plan evacuation and sorties	Design ship routes
Seasonal outlook (3 months)112zz	Issue situational awareness	Purchase seeds	Seasonal outlook		Plan commercial shipping in the arctic

OUR INOVATIVE TECHNOLOGY

01

Self-developed global climate dynamic model HKUST_H/L

02

Cutting-edge AI Technologies and Advanced Data Science Methodologies(AI4Climate & AI4Meteo)

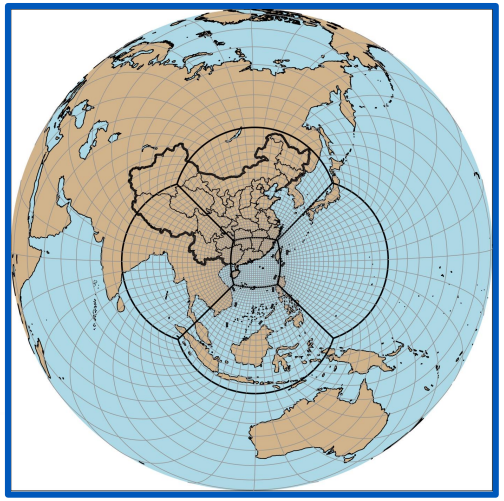
03

Implement an advanced 4DVar ensemble Kalman filter data assimilation approach, integrated with large-ensemble forecasting techniques, to refine initial prediction fields and minimize forecast uncertainties and error propagation.

04

Establish comprehensive upstream-to-downstream forecasting models designed to address the specific demands of diverse meteorological service stakeholders, enabling real-time predictive capabilities optimized for varied application contexts.

HKUST_L with FV3_HK_grid (C96_HK, 1° × 1°), a cubed-sphere grid specifically designed for Hong Kong



By employing focused variable-resolution grid dynamic downscaling, a high-resolution version of HKUST_H is constructed. The figure illustrates a global stretched grid centered on Hong Kong (115° E, 22° N), with a fine resolution of 12.5 kilometers.

Milestones

meteoNEX

Application achieved; advancing to broader implementation

Gold Award - The Geneva International Exhibition of Inventions 2025

Tsinghua University–Inspur Young Talent Award

meteoNEX at 2025 CSITF

gold award at the 2023 Asia International Innovation Invention Exhibition

Gold Award - The Geneva International Exhibition of Inventions 2025

Signed an MOU with the Shanghai Meteorological Bureau

INTERLECTURAL PROPERTIES

TWO PATENTS
ONE TRADEMARK

- US PATENT US 63/507,094
- CN PATENT 63/511,691
- HK TRADEMARK

FUNDING SECURED AND SEEKING

- TSSSU 2024

Strategic Partners

SCIENCE

Columbia University
Arizona State University
IAP CAS
Beijing Normal University 1902

SERVICES

United Nations — Department of Economic and Social Affairs, Sustainable Development
State Grid Corporation of China
NCC
State Oceanic Administration
国家林业局
Met Office
中再集团 CHINA RE
宁波天气 Ningbo Weather
Shanghai Typhoon Institute, CMA
香港天文台 HONG KONG OBSERVATORY
Environmental Protection Department 环保署

Supported By World Sustainable Development Institute & Otto Poon Centre for Climate Resilience and Sustainability

meteoNEX

NEXT-GEN CLIMATE INTELLIGENCE: AI DYNAMICAL HYBRID SUBSEASONAL-TO-SEASONAL PREDICTION AND SERVICES

Founder: Prof. Mengqian LU - HKUST