风宇：空间天气链式人工智能预报模型

FengYu: A CMA Full-Chain AI Model for Space Weather

中国气象局 (China Meteorological Administration)

南昌大学(Nanchang University)　华为技术有限公司 (Huawei Technologies Co., Ltd.)

世界气象组织及一些成员国将空间天气作为重要发展方向

WMO and some Members' efforts devoted to space weather forecasting

中国气象局第四个国家级人工智能模型

CMA’s Fourth National-Level AI Forecast Model

0-3小时预报
0-3 Hour Forecasting

风 雷
FengLei

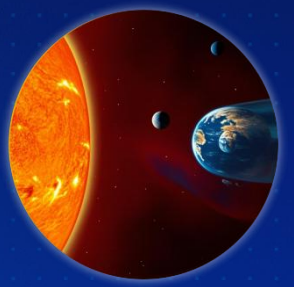
0-15天预报
0-15 Day Forecasting

风 清
FengQing

0-60天预报
0-60 Day Forecasting

风 顺
FengShun

空间天气预报
Space Weather Forecasting



风 宇
FengYu

2024年6月18日，发布0-60天无缝隙人工智能气象预报系列模型

June 18, 2024, Launch of 0-60 Day Seamless AI Weather Forecasting Model Series

全链式空间天气预报

A Full-Chain Space Weather Forecasting System

完善我国气象人工智能预报业务体系，填补了空间天气人工智能预报模型空白

Enhances China’s AI-based weather forecasting system and fills the blank in AI-driven space weather prediction

国家卫星气象中心（国家空间天气监测预警中心）
National Satellite Meteorological Center （National Center for Space Weather）

风宇模型的开发生态圈：产学研应用联合体

FengYu Model Ecosystem: Industry-Academia-Research Consortium

首创AI-空间天气算子

Original AI-based space weather operator

空间天气基础模型

Space weather foundation model

中国气象局第一代空间天气数值预报业务系统（CMA-SWx1.0）

CMA's First Operational Space Weather Numerical Forecasting System

硬件加速

Accelerated by hardware

底层算法适配

Underlying algorithm adaptation

128块910B智算卡
2.2PB全闪存

128 Ascend 910B AI cards
2.2 PB all-flash storage

华为昇腾架构

Huawei Ascend architecture

华为2012实验室

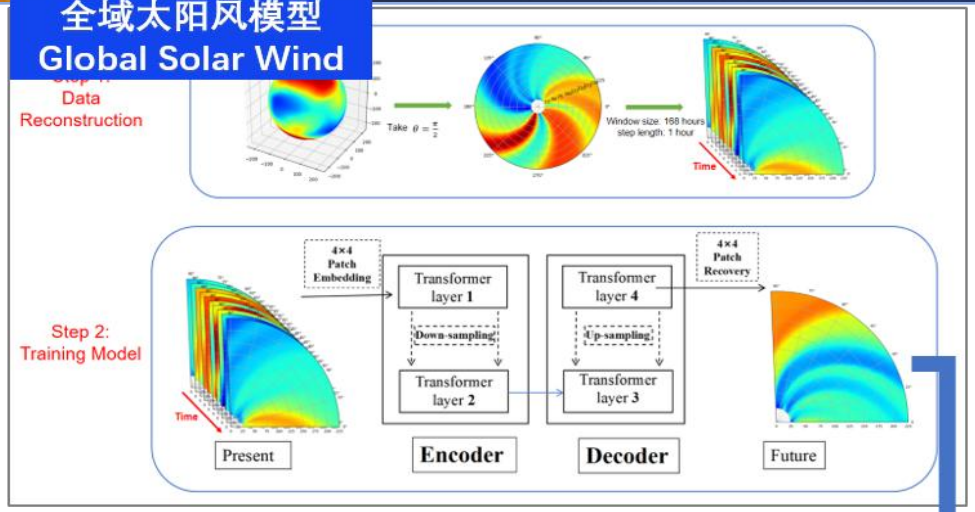
Huawei 2012 Labs

太阳风模型
Solar Wind Model

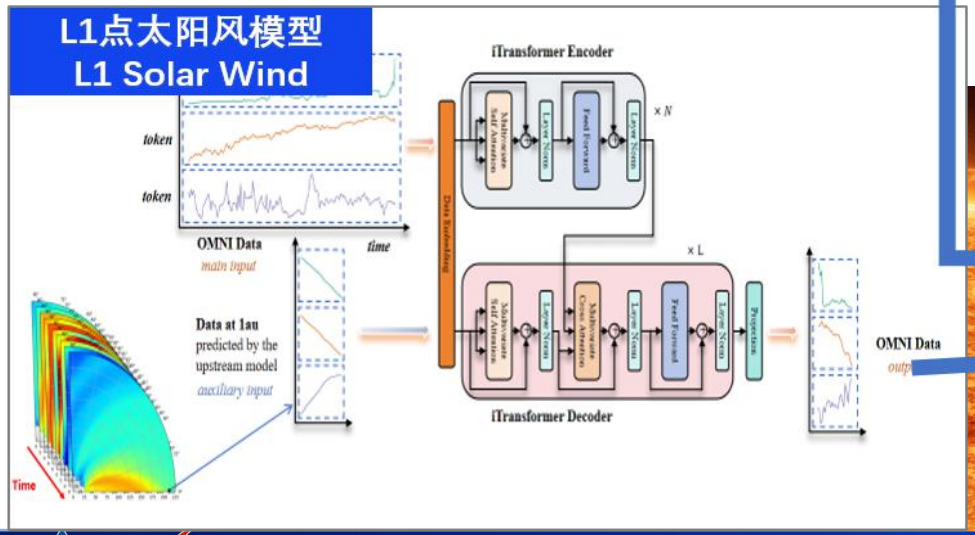
磁层模型
Magnetosphere Model

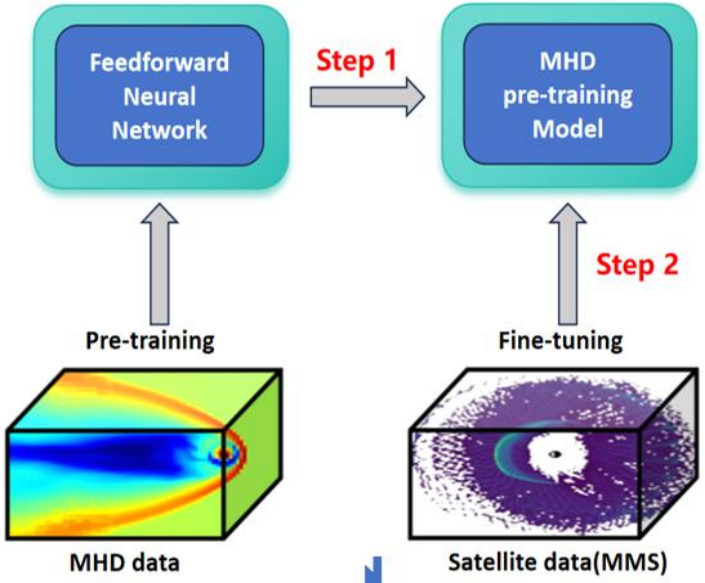
电离层模型
Ionosphere Model

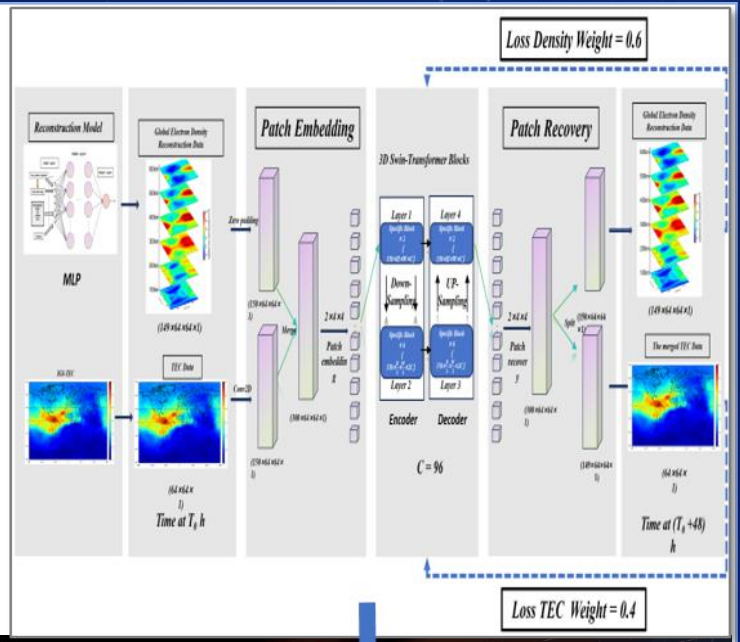
全域太阳风模型 Global Solar Wind

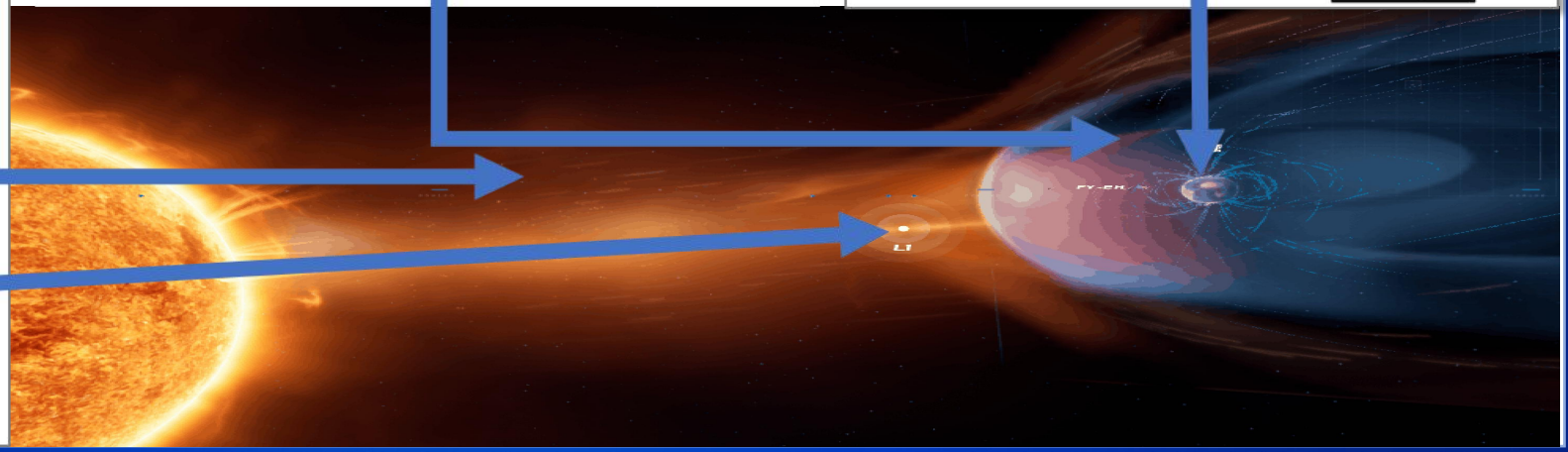


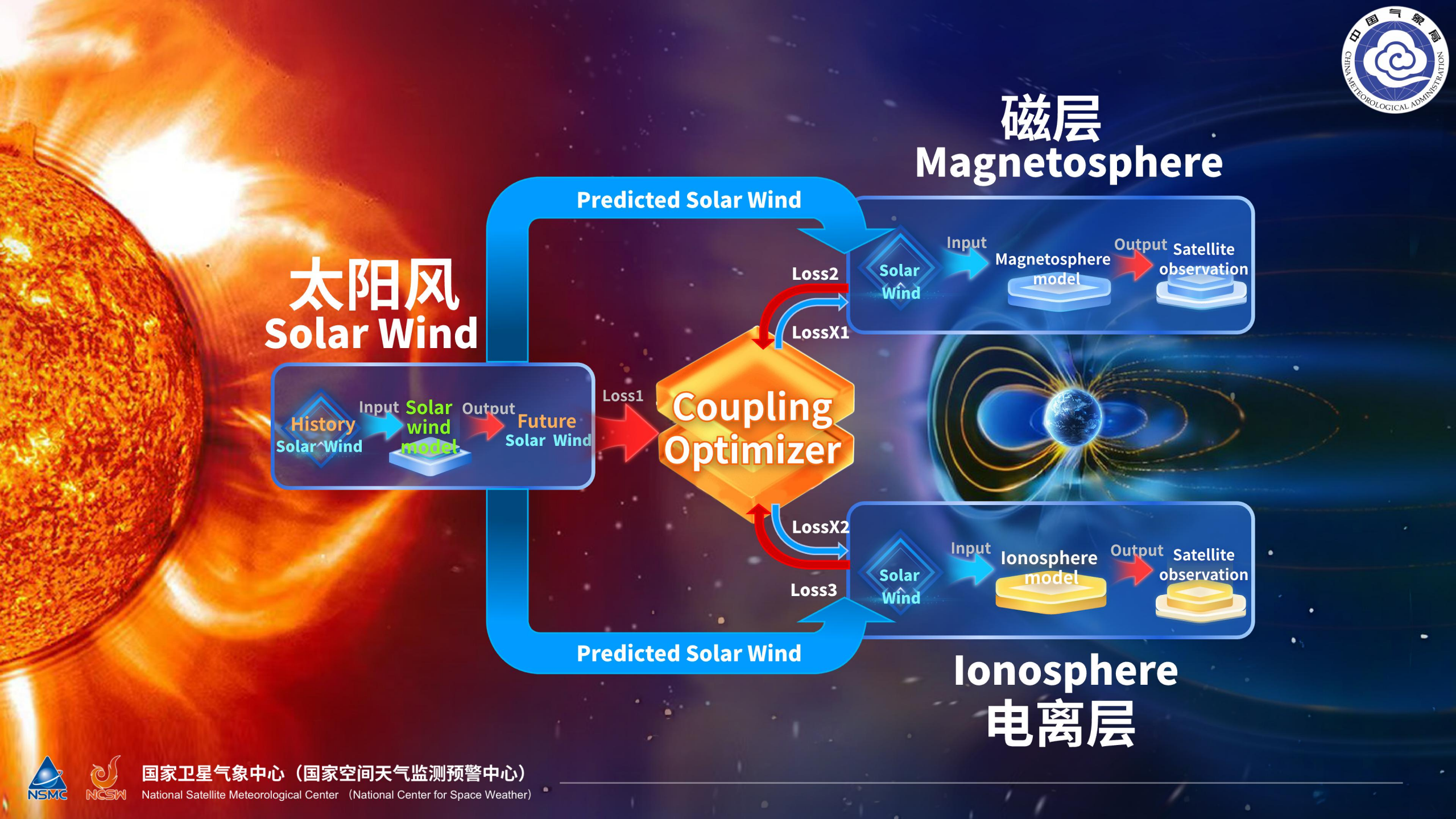
L1点太阳风模型 L1 Solar Wind











国家卫星气象中心（国家空间天气监测预警中心）
National Satellite Meteorological Center （National Center for Space Weather）

创新点一

创新点二

创新点三

创新点一：国际首次实现太阳风-磁层-电离层全链路智能建模

Innovation 1: The world's first end-to-end AI modeling of solar wind-magnetosphere-ionosphere coupling

创新点二：首创空间天气上下游智能耦合技术

Innovation 2: Original AI-based coupling of space weather upstream/downstream systems

创新点三：基于自主可控AI框架的算子领域优化技术

Innovation 3: Domain operator optimization via autonomous AI framework

国家空间天气监测预警中心将持续推动技术进步，切实履行国际民航组织“全球空间天气中心”职能，与国际同行加强合作，共同推进全球空间天气业务发展。

The National Center for Space Weather will continue to promote technological progress, earnestly perform its functions as the International Civil Aviation Organization (ICAO) Global Space Weather Center, and strengthen cooperation with international counterparts to jointly advance the development of global space weather operations.

谢谢倾听！

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