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GeoAI

The Next Generation of AI in Geophysics: From Automation to Intelligent Discovery

12–14 November 2026 • Hangzhou, China



MEETING INTRODUCTION

The Evolution of a Data-Rich Paradigm. Geophysics has always been data-intensive, but modern acquisition technologies like high-density seismic and distributed acoustic sensing (DAS) have created a deluge of complex, multi-scale measurement data. Traditional processing and interpretation methods struggle with this volume and variability, creating bottlenecks and introducing uncertainty. The first wave of AI/ML addressed this through automation and acceleration, tackling well-defined task like fault detection and noise attenuation. As we enter a second, potentially more transformative wave, AI moves beyond automation to become a collaborative partner in scientific discovery, providing not just answers but quantifiable uncertainty and generative scenarios.

AI in geophysics is evolving from a useful tool for automation to a strategic platform for intelligent discovery. A new wave of Artificial Intelligence (AI) - including foundation models, generative AI, and vision-language systems - is poised to redefine the very nature of subsurface discovery, promising a future where geoscientists are empowered to explore the subsurface with unprecedented speed, creativity, and confidence. This workshop will summarize how AI has delivered value by automating workflows and reducing risk, before diving deep into the next frontier. We will explore how these advanced technologies are creating a future of multimodal, physically constrained, and collaborative intelligence, enabling geoscientists to move from manual data processing to strategic, AI-augmented decision-making for a sustainable resource future.

TECHNICAL TOPICS

1. The Foundation of AI-Driven Geophysics
- Seismic Interpretation & Processing
- Reservoir & Petrophysical Analysis
- Drilling & Field Operations
- Mining & Mineral Exploration
- Environmental & Hazard Monitoring

2. AI Applications in Geophysics-Current State & Challenges
- Data Quality & Governance
- Physical Inconsistency & Interpretability
- Quantifiable Uncertainty
- Production-Grade Integration

3. The Next Frontier: From Tools to Partners
- Foundation Models for Geoscience
- Generative AI for Scenario Planning
- Vision-Language Models (VLMs) and Agentic AI

4. Future Directions: A Roadmap for Intelligent Discovery
- Physics-Informed Neural Networks (PINNs)
- Hybrid Data-Physics Driven Approaches
- Uncertainty-Aware AI
- Human-AI Collaboration
- Multimodal Fusion Architectures & Agentic AI
- Sustainable and Responsible AI

5. Interactive Session–Bridging Knowledge & Practice
- The State of the Art
- Hands-on with the Next Generation
- Overcoming Hurdles
- The Collaborative Future
- Road Mapping & Strategy

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Event Date: 12-14 November 2026
Event Venue: Wenlan Hotel Northern Hangzhou
Address: No.566 Moganshan Road, Gongshu District, Hangzhou, China
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GeoAI

SEG-GeoAI 2026 国际会议
地球物理AI新纪元：从自动化到智能发现

2026年11月12-14日 | 中国 · 杭州



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会议介绍

数据密集型范式的演进。地球物理学一直是一个数据密集型领域，但现代采集技术（如高密度地震和分布式声学传感）产生了复杂、多尺度的海量信息。传统的解释方法难以应对这种数据体量和多样性，形成了瓶颈并引入了不确定性。人工智能/机器学习的第一波浪潮通过自动化和加速处理解决了某一类问题，比如断层检测、噪声压制等明确定义的任务。在我们进入更具变革性的第二波浪潮，人工智能将超越自动化，成为科学发现协作伙伴，不仅提供答案，还能提供可量化的不确定性和多种生成情景。

地球物理学中的人工智能正从一个任务自动化的有用工具，演变为一个用于智能发现的战略平台。新一波人工智能——包括基础模型、生成式人工智能和视觉-语言系统——正在重新定义地下发现的本质，预示着地球科学家能够以前所未有的速度、创造力和信心探索地下的一个未来。本次会议将总结人工智能如何通过自动化工作流和降低风险来创造价值，深入探讨下一个前沿领域，探索这些先进技术如何创造多模态、物理约束、协同智能的未来，使地球科学家能够从手动数据处理转向战略性的、人工智能增强的决策，以实现可持续的资源未来。

技术主题

1. AI驱动地球物理学的基础
- > 地震解释与处理
- > 储层与岩石物理分析
- > 采矿与矿产勘探
- > 环境与灾害监测
- > 钻井与现场作业

2. 地球物理AI应用的现状与挑战
- > 数据质量与管理
- > 物理不一致性与可解释性
- > 可量化的不确定性
- > 生产级集成

3. 从工具到伙伴
- > 地学基础模型
- > 用于情景规划的生成式人工智能
- > 视觉-语言模型与智能体人工智能

4. 未来方向：通往智能发现的路线图
- > 物理信息神经网络与神经算子
- > 数据-物理混合驱动方法
- > 不确定性感知人工智能
- > 人机协作
- > 多模态融合架构与智能体AI
- > 可持续与负责任的人工智能

5. 互动研讨——连接知识与实践
- > 技术现状
- > 亲身体验下一代技术
- > 克服障碍
- > 协作的未来
- > 路线图与战略规划

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会议日期：2026年11月12-14日
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