

论文

工程地质学的大成综合理论

王思敬

中国科学院地质与地球物理研究所 北京 100029

摘要:

工程地质学工作大多涉及系统工程问题,综合集成应是必需的技术路线。多元知识,即多学科的综合集成道路已得到普遍共识。作者提出,工程地质学需要发展大成综合理论,即多源知识的综合集成。钱学森在研究复杂巨系统中考虑到推理、经验和实测信息的集成,并称之为大成综合(Meta-Synthesis)。本文从工程地质实践出发,指出大成综合理论在各工程建设阶段有不同的用法,但本质上是3种来源知识的相互制约和融合,以期达到结论的一致性,做出合理而可靠的决策。某大型抽水泵站高边坡的工程决策过程表明,大成综合理论可能支持超越常规的认识,做出突破性决策。

关键词: 工程地质学系统 综合集成 大成综合 多源知识 突破性决策

META—SYNTHESIS IN THE ENGINEERING GEOLOGY

WANG Sijing

Institute of Geology and Geophysics,CAS,Beijing 100029

Abstract:

The meta-synthesis approach,initiated by Prof.Qian Xuesen,is suggested to be accepted for solution making in the engineering geology system.An integration of multiple source knowledge,including experience,deduction and measurement evidence,constitutes the essential core of the proposed approach.Its basic principle is to integrate and merge the conclusions obtained in the different sources of knowledge or information.The integral agreement may support a rational solution,surmounted normal knowledge and standard.A practical example of slope stability evaluation is given in this paper for site selection of water pumping station.The decision was reached making a breakthrough over the conventional engineering solution.

Keywords: Engineering geology system Knowledge merging Meta-synthesis Multiple source knowledge Surmounted solution

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通讯作者:

作者简介: 王思敬,院士,工程地质专业.Email: wangsijing@mail.tsinghua.edu.cn

作者Email:

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