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农业与资源环境信息工程专题

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2018年11月19日

▶ 前沿资讯

1 . FAIR Data in Earth, Space, and Environmental Sciences (地球、空间和环境科学中的FAIR数据)

简介: FAIR数据项目旨在使科研数据能可持续利用,“FAIR”代表着可发现、可访问、可交互操作以及可重复使用的特征。以此为愿景,一些出版商、数据库商、学会和科研机构在一年期联合起来组建了“FAIR数据联盟”,建立真正科学意义上的FAIR使用数据原则。这些机构联合开发的指南本周在EOS期刊上发表。

来源: 德国地球科学研究中心(GFZ)

发布日期:2018-11-07

全文链接:<https://www.gfz-potsdam.de/en/media-and-communication/news/all/article/fair-data-in-earth-space-and-environmental-sciences/>

2 . Enhanced views of Earth tectonics (改善地球地质构造观测视角)

简介: Scientists from Germany's Kiel University and British Antarctic Survey (BAS) have used data from the European Space Agency (ESA), Gravity field and steady-state Ocean Circulation Explorer (GOCE) mission to unveil key geological features of the Earth's lithosphere -- the rigid outer layer that includes the crust and the upper mantle.

来源: ScienceDaily (美国)

发布日期:2018-11-05

全文链接: http://agri.ckcest.cn/file1/M00/02/9C/Csgk0FvuIKmALPY-AACn_1A0px0218.pdf

▶ 学术文献

1 . Smart farming: Opportunities, challenges and technology enablers (智慧农业: 机遇、挑战与技术革新)

简介: Agriculture is taking advantage of the Internet of Things paradigm and of the use of autonomous vehicles. The 21st century farm will be run by interconnected vehicles: an enormous potential can be provided by the integration of different technologies to achieve automated operations requiring minimum supervision. This work surveys the most relevant use cases in this field and the available communication technologies, highlighting how connectivity requirements can be met with already available technologies or upcoming standards. Intelligence is considered as a further enabler of automated operations, and this work provides examples of its uses.

来源: 2018 IoT Vertical and Topical Summit on Agriculture - Tuscany (IOT Tuscany)

发布日期:2018-05

全文链接:<http://agri.ckcest.cn/file1/M00/02/9C/Csgk0FvuH7uAU3ovAAW49GQXA6k566.pdf>

2 . IoT agriculture system based on LoRaWAN (基于LoRaWAN的农业物联网系统)

简介: In the last years, besides the implementation in the smart city applications, IoT has also found significant place in the agricultural and food production process. In the paper we present an innovative, power efficient and highly scalable IoT agricultural system. This system is based on LoRaWAN network for long range and low power consumption data transmission from the sensor nodes to the cloud services. Our system of cloud services is highly scalable and utilizes data stream for analytics purposes. In our case study we show some preliminary results for grape farm.

来源: 2018 14th IEEE International Workshop on Factory Communication Systems (WFCS)
全文链接: <http://agri.ckcest.cn/file1/M00/02/9C/Csgk0FvuHlmAG4hvAA6z4aITH0840.pdf>

3 . Remotely-sensed productivity clusters capture global biodiversity patterns (遥感高效聚类捕捉全球生物多样性模式)

简介: Ecological regionalisations delineate areas of similar environmental conditions, ecological processes, and biotic communities, and provide a basis for systematic conservation planning and management. Most regionalisations are made based on subjective criteria, and can not be readily revised, leading to outstanding questions with respect to how to optimally develop and define them. Advances in remote sensing technology, and big data analysis approaches, provide new opportunities for regionalisations, especially in terms of productivity patterns through both photosynthesis and structural surrogates. Here we show that global terrestrial productivity dynamics can be captured by Dynamics Habitat Indices (DHIs) and we conduct a regionalisation based on the DHIs using a two-stage multivariate clustering approach. Encouragingly, the derived clusters are more homogeneous in terms of species richness of three key taxa, and of canopy height, than a conventional regionalisation. We conclude with discussing the benefits of these remotely derived clusters for biodiversity assessments and conservation. The clusters based on the DHIs explained more variance, and greater within-region homogeneity, compared to conventional regionalisations for species richness of both amphibians and mammals, and were comparable in the case of birds. Structure as defined by global tree height was also better defined by productivity driven clusters than conventional regionalisations. These results suggest that ecological regionalisations based on remotely sensed metrics have clear advantages over conventional regionalisations for certain applications, and they are also more easily updated.

来源: Scientific Reports

发布日期: 2018-11-02

全文链接: <http://agri.ckcest.cn/file1/M00/02/9C/Csgk0FvuHX6AHTvmADjWkHjWmiQ620.pdf>