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**Call for Book Chapters Proposals**

**Remote Sensing of African Mountains - Geospatial Tools Toward Sustainability**

**Hello,**

Springer-Nature, one of the world's leading scientific publishing companies of the world, has accepted our proposal to write a Multi-Contributed book titled "**Remote Sensing of African Mountains - Geospatial Tools Toward Sustainability".** We welcome expressions of interest from researchers and practitioners from around the world and Africans, especially with a special interest in mountain environments, to contribute chapters.

**Editors:**

**Samuel Adelabu;** an Associate Professor in Remote Sensing at the University of the Free State, Department of Geography, South Africa

**Abel Ramoelo;** a remote sensing specialist with a special interest in vegetation dynamics. He works with South African National Parks. Holds a Ph.D. from the Faculty of Geoinformation Science and Earth Observation, the University of Twente, The Netherlands. He is also a research fellow at the University of the Free State.

**Adeyemi Olusola;** a fluvial geomorphologist and ecohydrologist with a special interest in remote sensing. Holds a Ph.D. from the University of Ibadan, Ibadan, Nigeria.

**Efosa Adagbasa;** an ecologist with interest in using advanced Remote Sensing and GIS. Holds a Ph.D. from the University of the Free State, South Africa.

**Overview of the Book**

Montane environments are found on every continent on the planet earth. Montane regions cover not less than 12 percent of the earth's surface and, amongst other things, provide various functions such as historical, cultural, religious, environmental, etc. These areas are essential biologically, as clearly portrayed by the Conference of Parties to the United Nations Conventions on Biological Diversity in 2004. The parties posited that montane environments are about the most biologically diverse parts of the earth. They lay claim to the fact that 25 of the 34 world centers of most significant biodiversity hot spots are wholly or partly mountainous (see Price, 2013). Unfortunately, these environments are the least protected globally. These regions are characterized by rugged terrain with a varying elevation of about 300 meters over a radius of about 7 kilometers

(Wohl, 2018). Hence, conventional monitoring of these regions and ecosystems is often stymied by the ruggedness and undulating nature of the landscape. Therefore, remote sensing techniques are essential in providing a synoptic view and an efficient approach to monitor and analyse changes in montane environments. These changes include but are not limited to vegetation, energy system, environmental hazards, ecosystem services, diseases, climatic forcings, geological formations, and geomorphological dynamics. The ability to monitor, assess, and analyse this region is aided by the availability of remote sensing products that are available for use, such as optical and microwave sensors and some low-cost Unmanned Aerial Vehicles, UAVs.

Human-environment interaction forces most of the changes in montane environments leading to changing climate, habitat loss and fragmentation, population growth, agricultural activities, and natural hazards, etc. Although these forcings are also peculiar to lowland environments, however, because of the physiography of montane environments and the highly sensitive nature of its ecosystems, changes or perturbations create almost irreversible reactions. For instance, the changing climate affects snow caps and glaciers as observed on mountain tops during the Last Glacial Maximum. Also, the slower pace of recovery of natural regenerative processes, owing to colder temperatures as observed in some protected mountainous environments in Africa. Besides, the more significant potential for erosion, owing to steeper gradients and generally less fertile soil endangers this environment and soil fertility especially across the slopes of Rwenzori and Kilimanjaro. Furthermore, fires and other anthropogenic activities like over-cultivation are leading to loss of carbon stocks in biomass of montane vegetation, especially across the Western and Eastern African Mountains. Carbon sequestered over the ages is being released into the atmosphere. The contribution from the montane environment to global carbon emission is yet to be fully accounted for in global emissions (Ward et al., 2014). It has been established that changing climates induces natural hazards, thereby amplifying the magnitude and frequency of these hazards. These hazards also lead to changes in the bio-physical environment by affecting surface and groundwater, aerosols, and particulate matter accumulation, and the introduction of new vegetal species in the environment, to mention a few. Besides, mountain regions serve as headwater catchment for most of the large rivers of the world (Price, et al., 2013). This is not different from what is obtained in Africa. That is, these environments serve as a source of surface and groundwater for those living around and beyond. The variety of plants and animals found within these environments are in no small extent, endemic with high genetic diversity. Mountain biota (plants and animals) survive under the environmental conditions of their habitat because of their adaptability, which allows them to establish themselves and reproduce. It is precisely this ability to adapt to the specific characteristics of a given microsite which has shaped one of the theories which partly explains the endemism found in the mountains through speciation.

Both the natural and anthropogenic forcings and their consequences impact on the livelihoods of mountain people and the natural ecosystem (Sharma et al., 2019). There is, therefore, the need to study and understand the dynamics of montane environments to ensure the conservation and sustainability of these threatened ecosystems (Hamilton, 2002; Wang et al., 2019). Hence, this book will focus on the use of remote sensing products for assessing and monitoring of various components of the mountainous ecosystems and associated changes. Specifically, the book will

focus on multiple scale applications of remote sensing – from unmanned aerial vehicles (UAVs) to satellite platforms.

**Expectations:**

The book is expected cover from the High Atlas Mountains in North Africa and Ethiopian Highlands in the East to the wild jungle mountain-scapes in West Africa and Rwenzori and Virunga in Central Africa and the Great Escarpment in the South. The spatial distribution of these ranges offers great possibilities to unravel ecological dynamics at play and future trajectories. Contributed chapters will be classified under the following broad thematic areas to achieve the aim of the book. These are:

1. Satellite Remote Sensing and Africa mountains' vegetation.
2. Satellite Remote Sensing and mountain hazards in Africa.
3. Satellite Remote Sensing and Africa mountains 'ecosystem services.
4. Satellite Remote Sensing of Africa mountains' geological and geomorphic surfaces.
5. Satellite Remote Sensing and Africa mountains' energy balance modelling.
6. Satellite Remote Sensing and the mountains cryosphere in Africa.
7. Satellite Remote Sensing and Diseases in Africa mountains'.

**Guidelines for Proposals:**

a. Proposals are expected on any of the above-listed themes.
b. The proposal should spell out the title and content (expectations and the remote sensing products to be used and the mountain location) between 400-450 words.
c. The content/abstract should list the authors, affiliation, email address(s), and a pointer to the corresponding author. Also, short Author-bio will be requested upon acceptance
d. Upon acceptance of the proposal, we will forward the guidelines and other necessary details.
e. We want to be as diverse as possible. Hence we welcome contributions on various mountain ranges from various parts of the continent.

**Proposals should be sent to:**

**Email: mountainsafrican@gmail.com**

**Proposals are due by 31st October 2020, and we expect full papers by 1st of March 2021**