

Taking Multiple Measures to Show Solicitude for Lives on Earth in Yimengshan Geopark

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Abstract

Yimengshan UNESCO Global Geopark is located in Linyi City, Shandong Province, China. In recent years, combining the concept of SDG15, Yimengshan Global Geopark Administration has actively made efforts to protect, restore and promote the mountainoushilly ecosystem through multiple channels. It has achieved significant results in ecosystem restoration, geological heritage conservation, promoting the sustainable development of geopark communities and supporting biodiversity research.

Keywords

Yimengshan UGGp, Ecosystem, SDGs

Introduction

Taking this easy as an example on how to promote mutual-development of nature and human resources. This presentation is divided into five parts: the overview of Yimengshan UGGp, necessity of integrating scientific research with science communication, case study of science researches, bilingual videos with real-time update mechanisms, omni-media matrix for three-dimensional communication.

Overview of Yimengshan UGGp

Location of Yimengshan UGGp

Yimengshan UNESCO Global Geopark is situated in Linyi City, Shandong Province, encompassing distinctive geoheritage zones including Mengshan, Diamond Mining Site, Daigu Landform, Mengliangu Geological Relics, and Yunmeng Lake. It spans four counties (Feixian, Yinan, Pingyi, and Mengyin) and 13 townships, with a total administrative area of 1,784.06 square kilometers.

Geological Heritage and Formation

Yimengshan UNESCO Global Geopark exhibits remarkably diverse geological features, boasting significant geoheritage including the iconic Daigu Landform, primary diamond deposits, multi-phase magmatic intrusion relics, and ancient rock formations of the Taishan Group. The majestic Mengshan massif features pronounced elevation variations and multiple fault systems with divergent orientations that vertically dissect the terrain, creating spectacular peaks characterized by grandeur, steepness,

elegance, and uniqueness—exemplified by Guimeng Summit, Yunmeng Peak, Wanghai Tower, and Moyun Gu.

Ecological Environment and Natural Resources

The park possesses exquisite ecological environments and rich biodiversity, with documented records of over 1,450 animal and plant species. Its diverse ecosystems provide critical habitats for wildlife reproduction and survival. In 2022, a new insect species—Grewia mining moth (scientific name pending)—was discovered in Mengshan, with research findings published in the internationally renowned journal *Zootaxonomy*.

Scientific Research Value

Stratigraphic Research Significance

The stratigraphic sequences of Mengshan document Earth's prolonged evolutionary history, with 20 distinct stratigraphic units revealing complex crustal movements within the region. These formations hold significant importance for studying stratum formation, evolutionary processes, and the division of geological time scales

Geotectonic Research Significance

The complex geological structures within the park serve as vivid manifestations of tectonic movements. The presence of eight distinct types of intrusive rocks provides critical insights into the patterns and mechanisms of crustal dynamics, enabling deeper understanding of plate tectonics, seismic activities, and related phenomena. This knowledge carries significant practical impli-

cations for predicting geological hazards and ensuring public safety.

Biodiversity Research Significance

The park hosts over 1,200 plant species and 252 wild vertebrate species, with this substantial dataset providing foundational information for assessing regional biodiversity levels. Additionally, it shelters 19 nationally protected wildlife species and 4 rare and endangered tree species designated at state level. Research on these precious species facilitates critical understanding of their ecological requirements, reproductive behaviors, and population dynamics, thereby supplying key insights for developing targeted conservation strategies.

Cultural Heritage Significance

Historical and Cultural Endowment

The Yimengshan area possesses a profound historical and cultural heritage, serving as one of the birthplaces of the Dongyi culture (a prehistoric eastern Chinese civilization). The ancient Zhuan Yu state's mountain worship traditions embodied prayers for climatic stability and national prosperity. The region's distinctive longevity culture is characterized by enduring practices of Fushou(blessing-longevity) rituals. Ancient villages and traditional folk customs encapsulate local wisdom and emotional legacy, constituting vital components of the Chinese national cultural treasury.

Red Culture Legacy Transmission

As a renowned revolutionary base area, Yimengshan bears glorious red history. During revolutionary wars, the Yimeng people made monumental contributions to national liberation, forging the profound Yimeng Spirit. Inheriting and promoting this red culture holds vital significance for cultivating patriotism and strengthening national identity.

Distinctive Folk Cultural Features

The region's folk culture demonstrates remarkable diversity, featuring unique traditions such as rain-praying rituals, mountain deity worship ceremonies, and the renowned Mengshan Temple Fair. It preserves rich intangible cultural heritage with 21 types of practices recognized at the provincial level. Inheriting and developing these folk traditions strengthens national cohesion cultural identity, while fostering regional cultural prosperity and sustainable development.

Necessity of Integrating Scientific Research with Science Communication

- **Social Demand Dimensions:** Public Thirst for Scientific Knowledge. In today's information era, the public's demand for scientific knowledge continues to grow exponentially. Yimengshan UNESCO Global Geopark, with its rich scientific resources, provides an exceptional platform to satisfy this intellectual curiosity. Through tailored popular science activities, the park enables the public to acquire geological knowledge while igniting their passion and interest in natural sciences.
- **Enhancing Public Scientific Literacy:** Imperatives and Pathways: The advancement of public scientific literacy represents an inevitable requirement for social progress. The integrated dissemination of scientific research and popular science can transform esoteric knowledge into accessi-

ble information for the public, fostering scientific thinking and values while elevating overall scientific literacy to drive societal civilization forward.

- **Facilitating Science-Society Interaction:** The integration of scientific research with public communication strengthens the interaction between science and society. Engaging the public in scientific inquiry and outreach activities achieves dual benefits.

Development Imperatives for Geoparks

Enhancing Visibility and Global Influence: The strategic fusion of scientific research and science communication significantly elevates Yimengshan UNESCO Global Geopark's visibility and international influence. By showcasing the park's cutting-edge research findings and engaging popular science initiatives, we attract:

- Increased visitor flows (both tourist and academic)
- Enhanced global recognition within the geoparks community
- Sustainable development momentum for long-term excellence

Advancing the Integration of Tourism and Science Education: By combining scientific research with science communication and tourism, we deliver more comprehensive and meaningful travel experiences. While admiring the natural landscape, visitors simultaneously:

- Acquire scientific knowledge
- Gain insights into the geopark's cultural significance

This innovative tourism model not only enhances visitor satisfaction, but also drives the transformation and upgrading of local tourism industries.

Achieving Sustainable Development Goals (SDGs)

The convergence of scientific research and science communication effectively advances geopark sustainability goals. By elevating public awareness of environmental protection and geological resource conservation, this approach:

1. Reduces anthropogenic damage through enhanced stewardship ethics
2. Optimizes resource utilization via scientific guidance for sustainable development
3. Ensures long-term preservation of both ecological environments and cultural heritage

Case Study

Geological Exploration Adventure

Doctor & Mengmeng Series Videos: This video series focuses on geological exploration adventures, featuring the park's iconic geoheritage sites including:

- China's largest primary diamond deposit
- The unique Daigu landform (table-shaped mountains)
- Komatiite formations (ultramafic volcanic rocks)
- Relics of the Taishan Complex (2.8-billion-year-old rock group)
- Medical stone (maifanite) mineral exposures
- Turtle-shaped weathering features
- Wangfushan pluton (Mesozoic granite intrusion)

- **Here are two examples of videos:** Explore China's Largest Primary Diamond Deposit with Doctor;
- **Taishan Complex Relics:** 2.7-Billion-Year-Old Geological Sleuths Hidden in Mengshan

Tracing Historical Origins

- **Me & Mengshan: Animated Series:** This animated series weaves together geological evolution and human history as dual narrative threads. Through compelling storytelling, it deciphers Mengshan's natural wonders and cultural heritage, serving as a bridge connecting past and future, nature and civilization. Two cases are Mengmeng's Time Travel to 600,000 Years Ago: Yiyuan Man Hunts a Woolly Mammoth; and Mengmeng's Journey to Mengshan 2,000 Years Ago: When Confucius Ascended the Eastern Mountain and Saw Lu State from a Negligible Perspective.

Cultural Heritage Transmission

For instance,

- **Daigu Peach Blossom Festival:** Intangible Heritage Pancake Flower Art
- **Dragon Boat Festival:** Intangible Heritage Feixian Embroidery Transmission
- **Year of the Snake:** Lunar New Year Greetings Celebration

Bilingual Videos with Real-time Update Mechanisms

Real-time Update Mechanism Establishment

1. **Update Frequency and Scheduling Mechanism:** To ensure timely dissemination of the latest information, we will implement real-time update protocols and develop scientifically planned content schedules. Based on research advancements and event calendars within the geopark, regular updates will be made to:
 - Droctor & Mengmeng popular science short video series
 - Me & Mengshan situational drama episodes
2. **Content Screening and Review System:** During content updates, we implement strict screening and review protocols to ensure all materials demonstrate scientific accuracy, factual precision, and engaging delivery.
3. **User Demand Feedback Mechanism:** We prioritize user demand feedback to dynamically adjust content updates and development directions. By leveraging user surveys, comment analysis, and interactive channels, we gain insights into audience preferences and needs for science communication. These insights drive continuous optimization of our update mechanisms to enhance user satisfaction.

Sustained Enhancement of Communication Effectiveness

- **Data Analysis and Evaluation System:** We utilize advanced analytics tools to systematically assess the impact of bilingual videos and real-time updates through a multidimensional evaluation framework
- **Strategy Adjustment and Optimization Framework:** Based on data analytics and user feedback, we dynamically adjust communication strategies and content production. For instance, by identifying audience preferences, we prioritize the development of targeted video series to significantly amplify influence.

Omni-media Matrix for Three-dimensional Communication WeChat Official Account Dissemination Strategy

1. **Characteristics of Content Dissemination:** As a vital dissemination channel, our WeChat official account delivers content with remarkable richness and depth. Beyond publishing the Droctor & Mengmeng science series and Me & Mengshan situational dramas, we provide diversified content matrix.
2. **Interactive Function Design:** To enhance user interaction, our WeChat Official Account has implemented a variety of interactive features. For example:
 - **Comment & Feedback System:** Users can leave comments below articles to ask questions or share suggestions
 - **Knowledge Engagement Activities:** Participants can join online science Q&A sessions and earn rewards

These interactive functions significantly boost user participation and engagement.

Fan Operation Strategy

We prioritize fan cultivation by organizing regular activities, attracting new fans, and enhancing loyalty. This strategy combines incentive mechanisms with continuous service improvement, transforming casual audiences into loyal brand advocates while maintaining scientific integrity.

Video Channel Dissemination

- **Video Content Optimization Strategy:** Optimization of "Droctor & Mengmeng" Science Series and "Me & Mengshan" Dramas on Video Platform. Based on the platform's characteristics and user preferences, we will create more engaging short videos by highlighting key information and core attractions to capture audience attention.
- **Innovative Promotion Strategies:** Use a variety of promotion methods, such as cooperating with other Channels bloggers and participating in platform activities, to increase the exposure of videos. At the same time, use the social attributes of Channels to encourage users to share videos and expand the scope of dissemination. Through innovative promotion methods, more users can understand and pay attention to the popular science content of Yimengshan Global Geopark.
- **User Feedback Collection System:** User Feedback Collection and Optimization Mechanism. We have established a systematic feedback mechanism to promptly gather users' opinions and suggestions regarding video content. Based on this feedback, we continuously adjust video production and promotion strategies to optimize content and enhance viewing experiences.

TikTok Dissemination Strategy

- **Short Video Content Differentiation Strategy:** Creating Distinctive Short Videos on Douyin Platform. We develop unique short videos by integrating Douyin's trending topics and popular elements, producing entertaining and innovative content. For instance, using special effects and music to enhance fun and visual appeal, attracting more Douyin users' attention.
- **Topic Marketing Implementation:** Leveraging Douyin's Topic Marketing for Yimengshan UNESCO Global Geopark. We utilize Douyin's topic marketing features to create trending topics related to Yimengshan UNESCO

Global Geopark, encouraging users to participate in discussions and produce relevant short videos. Through topic marketing, we enhance the park's visibility and popularity, expanding the reach of science communication content.

- **Influencer Collaboration Strategy:** Collaborating with Douyin Influencers for Science Promotion. We partner

with Douyin influencers to involve them in producing and promoting science short videos. These influencers possess substantial followings and influence, and their recommendations can attract more users to engage with the educational content of the geopark. Through these collaborations, we enhance the reach and impact of science communication.