

Biodiversity tends to be higher where solar energy is high

We propose a hierarchy of factors driving the latitudinal distribution of diversity: (i) over geologically long time spans, diversity is largely predicted by climate; (ii) when climatic ...

Biodiversity, the variety of life, is distributed heterogeneously across the Earth. Some areas teem with biological variation (for example, some moist tropical forests and coral reefs), others are ...

Study with Quizlet and memorize flashcards containing terms like Primary Production--Explain how solar energy is acquired and transferred by living organisms, Trophic Levels--Explain how energy flows and matter cycles through trophic levels., A food web is a model of an interlocking pattern of food chains that depicts the flow of energy and nutrients in two or more food chains ...

OverviewHypotheses for patternPatterns in the pastSynthesis and conclusionsSee alsoAlthough many of the hypotheses exploring the latitudinal diversity gradient are closely related and interdependent, most of the major hypotheses can be split into three general hypotheses. There are five major hypotheses that depend solely on the spatial and areal characteristics of the tropics. Using computer simulations, Colwell and Hurt (1994) and Willing and Lyons (1998) first pointed ...

To investigate why temperature might be so influential and predictive, Stockey took the lead in developing a mathematical model. The model accounts for the fact that higher temperatures generally increase the amount of energy in an ecosystem, theoretically raising the ceiling on the biodiversity an ecosystem can sustain, at least to a point.

The authors declare no conflicts of interest. Abstract Solar photovoltaic (PV) has become the second renewable energy source, giving rise to potential conflicts with biodiversity conservation. However, the information available about the impac...

Using a phylogeny that covers the entire history of mammalian diversification, we found patterns in line with the hypothesis that speciation rates are higher in the tropics, potentially arising from area effects, increased specialization linked to climatic stability, niche availability, biotic interactions, and higher solar energy .

I think it is a result of the tiltation of the earth at 23.5 Degrees. This influence the angle of inclination of the sun towards the earth/North pole and also further its distance from the sun.

Recycling materials Switching to renewable energy sources with lower carbon dioxide emissions Catching more fish than the breeding population can replace Replanting trees as timber is harvested Burning fossil fuels that release stored carbon into the atmosphere in excess of the Earth's ability to reabsorb it Biodiversity tends to be higher ...

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1.^ Chegg survey fielded between Sept. 24-Oct 12, 2023 among a random sample of U.S. customers who used Chegg Study or Chegg Study Pack in Q2 2023 and Q3 2023. Respondent base (n=611) among approximately 837K invites. Individual results may vary. Survey respondents were entered into a drawing to win 1 of 10 \$300 e-gift cards.

This deviation amplifying system increased until further increases were limited by the yearly amount of solar energy. Since that is highest in the tropics, that is where diversity is highest. Now we have more than a correlation. We have a cause and effect. High energy flow is the cause of high species diversity.

Map latitudinal gradient of living terrestrial vertebrate species richness (Mannion 2014). Species richness, or biodiversity, increases from the poles to the tropics for a wide variety of terrestrial and marine organisms, often referred to as the latitudinal diversity gradient. [1] The latitudinal diversity gradient is one of the most widely recognized patterns in ecology. [1]

The global patterns of temperature (Fig 2.3.3) and precipitation (Fig 2.3.5) correlate to global patterns of biodiversity (Fig 2.3.9). Regions near the equator (which have high temperature and high precipitation) tend to have higher levels of diversity, while regions at higher latitudes (nearer to the poles) have overall lower diversity.

The factors vary considerably in their predictability. Climate is quite predictable - we can assess it reasonably well throughout the history of complex life on Earth (i.e., the Phanerozoic) [11], and we can even assess it remotely on other planets as a function of their position in the solar system and atmospheric chemistry (observable via Earth-orbiting satellites).

Part II: CLIMATE AND BIODIVERSITY. SOLAR ENERGY/CLIMATE. The hot and humid climate plays an important role in rainforest variety. As a general rule, diversity. and ecosystem productivity increase with the amount of solar energy available to the system. Sunlight is captured in the leaves of canopy plants via photosynthesis, converted into simple sugars, and ...

Higher speciation rates in the tropics is due to the greater heterogeneity of resources and species interactions that are made possible by greater amounts of solar energy, ...

The increase in species richness from the poles to the tropics, referred to as the latitudinal diversity gradient, is one of the most ubiquitous biodiversity patterns in the natural ...

Research on PV impacts on biodiversity have not increased proportionally to its development, with a significant knowledge deficit compared to other currently less widespread energies, such as wind energy (e.g., Marques et al., 2014; Nazir et al., 2020; Peste et al., 2015; Powlesland, 2009; Wang et al., 2015; Wang & Wang, 2015).

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Ecological opportunity hypothesis: Higher speciation rates due to more ecological niches stemming from higher solar energy and annual productivity, reduced temperature ...

Study with Quizlet and memorize flashcards containing terms like Biodiversity, 2 Biodiversity trends, Pelagic species are high between degrees and more. ... Biodiversity tends to be higher in... 4 areas. tropics than at higher latitudes Coastal than shelf/abyssal Western oceans than eastern oceans Pacific than Atlantic.

Most of the well-documented effects of solar energy on ecosystems and biodiversity manifest through the loss and change of habitats. This is because the development of solar energy infrastructure can take up significant amounts of land modifying and fragmenting habitats in the process.

Study with Quizlet and memorize flashcards containing terms like How does the fragmentation of a landscape have a positive effect on biodiversity? A increases the amount of matrix habitat. B. It increases the amount of edge habitat. C. It increases the total size of available habitat. D. It increases the number of habitat patches., Why is it important to consider the quality of the ...

Explanations for major biodiversity patterns have not achieved a consensus, even for the latitudinal diversity gradient (LDG), but most relate to patterns of solar energy influx into Earth systems ...

Most of the well-documented effects of solar energy on ecosystems and biodiversity manifest through the loss and change of habitats. This is because the development of solar ...

Biodiversity. The amount of biological or living diversity per unit area. It includes the concepts of species diversity, habitat diversity and genetic diversity. // it describes the numbers and kinds of species in a location ... Vodka will not freeze in the freezer because it contains a high percentage of ethanol. The freezing point of pure ...

The intertropical belt has an ecological definition that roughly matches its geodesic limits (i.e., between 23°N, the tropic of Cancer, and 23°S, the tropic of Capricorn; Fig. 1). Tropical climate, ranging from lowlands to the nival belt, can be characterized by a low thermal amplitude across seasons and usually high humidity, though deserts are also included in the ...

Latitudinal gradients of biodiversity are biogeographic patterns that quantify the ways in which taxonomic, phylogenetic, functional, genetic, or phenetic biodiversity change with latitudinal position on the surface of the earth (Fig. 1). Historically, research has focused on gradients of species richness (i.e., the number of species in an assemblage) because that was the only ...

Terrestrial biodiversity tends to be highest near the equator, which seems to be the result of the warm climate and high primary productivity. Marine biodiversity tends to be highest along coasts in the Western Pacific, where sea surface temperature is ...

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Answer to Biodiversity tends to be higher where.... an explanation would be... Answer to Biodiversity tends to be higher where.... an explanation would be... AI Chat with PDF. ... Where solar energy is high and biogeochemical cycles are slow. Step-by-step explanation. The above is the correct answer. Thank you!

The circulation of genetic information is the essence of the entire biological evolution process and requires driving energy based on solar one. When an ecosystem includes more ...

Primary production is the process by which solar energy is converted to chemical energy by autotrophic organisms, primarily green plants on land, providing the energy available to power earth's ecosystems. ... (i.e., the relative degree of variation) of annual precipitation in deserts (30-35 %) tends to be much higher than in forests (10 ...

The first perspective considers the energy cost of a local ecosystem to maintain biodiversity, based on the consideration that the more renewable resources in local ecosystem, the more biodiversity can be maintained, and the greater is the potential of biodiversity, i.e. the perspective of biodiversity potential.

high demand for energy and high pressure for reducing carbon emissions (REN21, 2014). This is, however, not presently the case for other rapidly expanding renewable energy sources, such as wind and solar energy, for which technical restrictions on power storage and distribution limit their usage to the areas where they are produced (IPCC, 2011).

Biodiversity higher in the tropics, but species more likely to arise at higher latitudes. ScienceDaily . Retrieved November 8, 2024 from / releases / 2013 / 11 / 131122132451.htm

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