Intercontinental Optical Cable

Article Overview

An intercontinental optical cable is an undersea fiber-optic cable that transmits vast amounts of digital data between continents, forming the backbone of global communications.

Overview

Intercontinental optical cables, also known as submarine fiber-optic cables, are laid on the seabed to connect land-based stations across oceans, enabling high-speed transmission of telephone, internet, and private data traffic between continents . These cables are the primary medium for international communications, carrying over 95% of global intercontinental data, far surpassing satellite transmission in speed and bandwidth .

How They Work

At the core of these cables are optical fibers made of ultra-pure glass or plastic, each about the width of a human hair. Data is transmitted as pulses of light, which travel through the fibers by total internal reflection, allowing signals to cover thousands of kilometers with minimal loss . To maintain signal strength over long distances, repeaters or amplifiers are embedded at intervals along the cable, converting light to electrical signals, amplifying them, and reconverting them to light for continued transmission .

Technical Features

Modern intercontinental cables are typically around 20-25 mm in diameter and contain multiple fiber pairs, sometimes up to 16 or more, allowing enormous data capacity. For example, a single cable can support hundreds of millions of terabits per second, enough to stream thousands of HD videos simultaneously for millions of users . Near coastlines, cables are often buried in the seabed to protect them from damage, while deep-sea sections are lighter and more flexible .

Historical Context

The first submarine cables, laid in the 1850s, carried telegraph signals, establishing the first instant communication links between continents, such as the transatlantic telegraph cable . Modern fiber-optic cables began deployment in the late 20th century, with the first transcontinental fiber-optic cable, TAT-8, connecting the USA, Great Britain, and France in 1988 .

Global Significance

These cables are critical for the global economy, supporting financial transactions, internet connectivity, and international communications. For instance, networks like SWIFT rely on these cables to transmit millions of

messages daily between banks worldwide . Countries with extensive intercontinental cable connections, such as China, have enhanced economic competitiveness and global connectivity . In summary, intercontinental optical cables are the essential infrastructure that enables fast, reliable, and high-capacity communication across continents, forming the backbone of the modern digital world .

It is a common misconception that most global communication is accomplished via satellite. In fact, over 95 percent of international

A transatlantic telecommunications cable is a submarine communications cable connecting one side of the Atlantic Ocean to the

"Submarine cables account for over 99% of intercontinental data traffic" is regularly quoted in the press with no source

Fiber Optics In Submarine Cables Submarine cables are the unsung heroes of global internet connectivity, carrying

Fibre-optic Link Around the Globe (FLAG) is a 28,000-kilometre-long (17,398 mi; 15,119 nmi) fibre optic mostly- submarine

Amazon Web Services (AWS) today announced Fastnet, a new state-of-the-art transatlantic subsea fiber optic cable

The first submarine communications cables were laid beginning in the 1850s and carried telegraphy traffic, establishing the first

Ninety-five percent of intercontinental internet traffic travels through undersea fiber optic

Subsea fiber-optic cables, a critical information and telecommunications technology (ICT) infrastructure carrying more

The average span length is 46 km. CLS: Cable Landing Station. from publication: Frequency stability and phase noise

Similarly, the map focuses on the intercontinental backbone of submarine cables. It does not show the incredibly

Explore the physical backbone of the internet with our interactive map of undersea fiber optic cables, peering exchange points, and

7 - Petroleum jelly 8 - Optical fibers Submarine cables are laid using special cable layer ships, such as the modern René Descartes

What is something most people don"t know about undersea cables? Most people probably

The reality is quite different, 98% of the data intercontinental transference is done through

Submarine Cable Map 2025 This new edition depicts 597 cable systems and 1,712 landings that are currently active or under

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