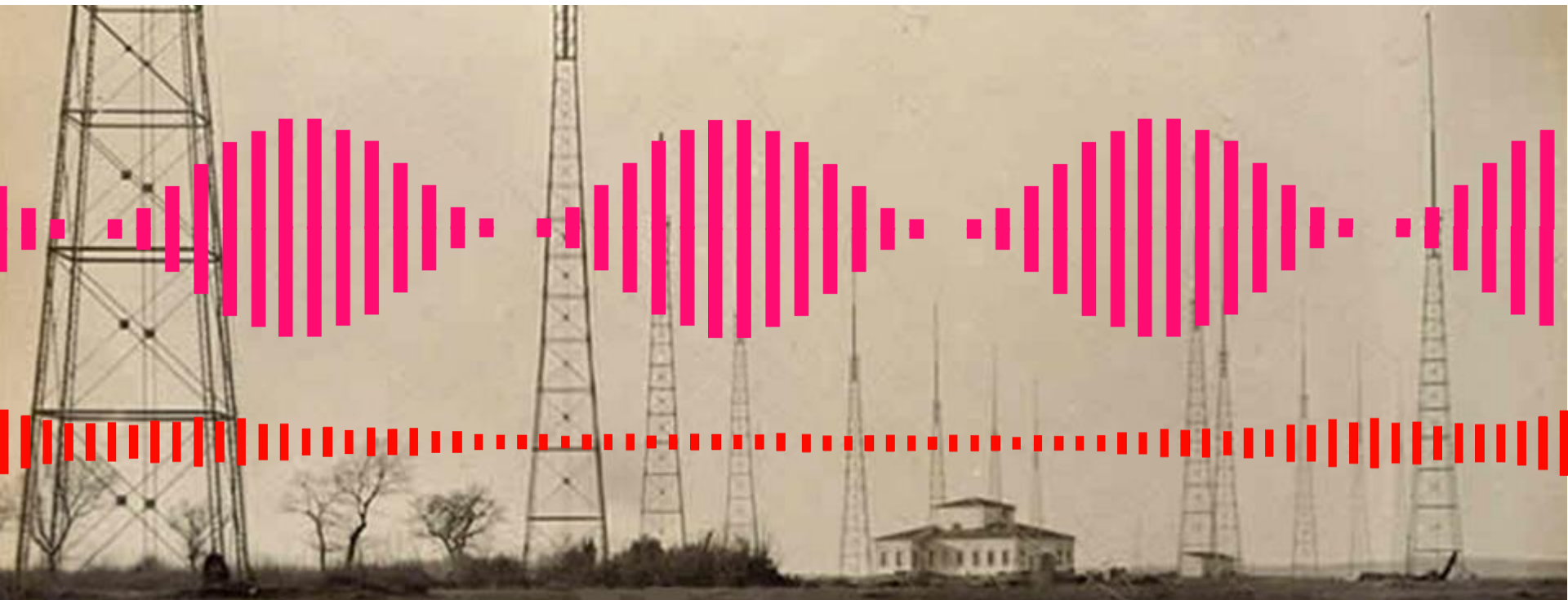


Bologna, 3 October 2018

"The Long Arc of Telecommunication: a Conversation with Vinton Cerf"

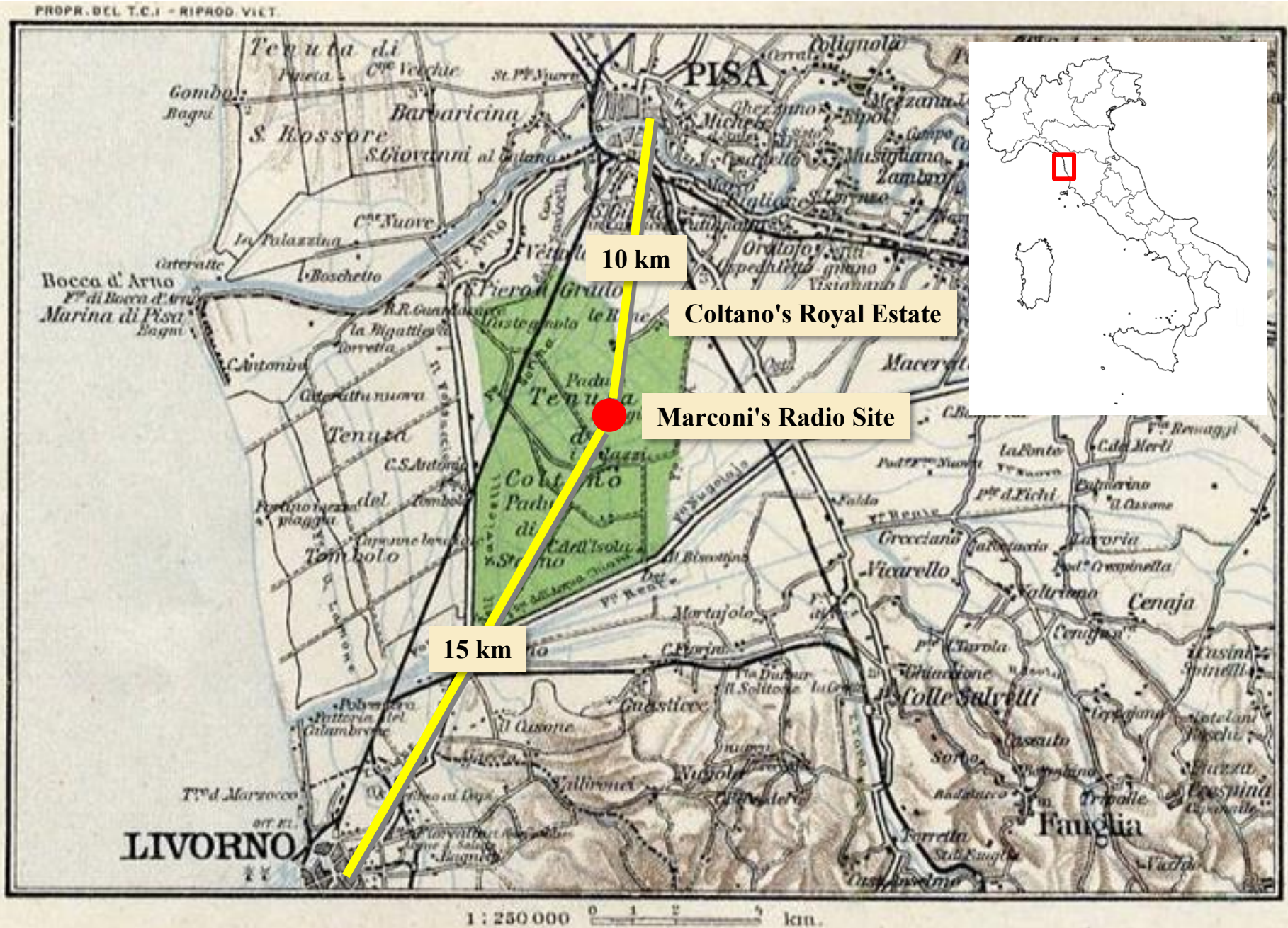
Coltano: the forgotten story of Marconi's early powerful intercontinental station



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Coltano is near Pisa, in Tuscany



MARCONI

e la nuova stazione ultrapotente

E' noto che da Roma e prima di tornare a Londra, Guglielmo Marconi si recò nei giorni scorsi a Pisa per studiare se ivi fosse possibile l'impianto di quella stazione ultrapotente di radiotelegrafia che il nostro Parlamento approvò e che dovrebbe servire a facilitare le comunicazioni con l'America del Sud, ove sono milioni di emigrati italiani.



Coltano, Villa Medicea, 1586, Bernardo Buontalenti

Thursday, May 21st 1903



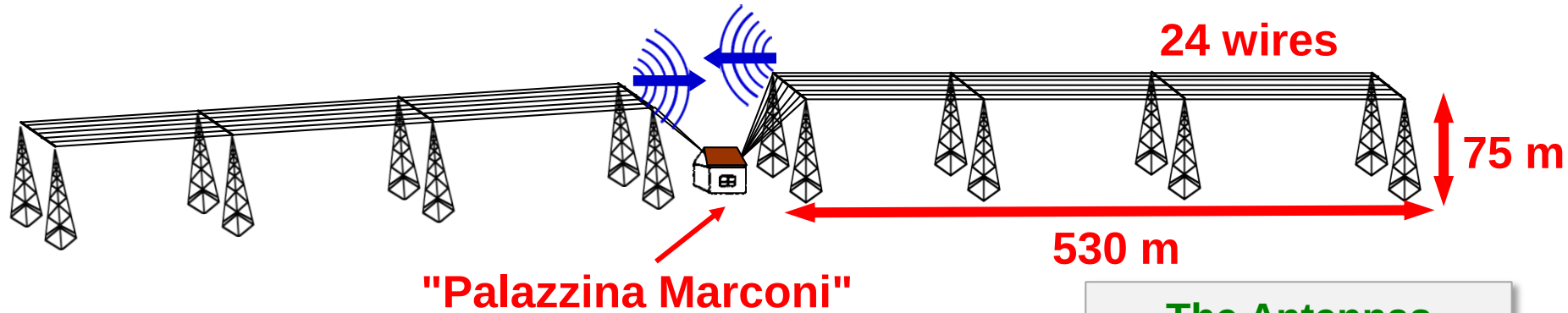
Marconi's corner,
today

Why did Marconi choose the Coltano site?

- Coltano is a flat and scarcely populated area.
- Its wet soil has a high electrical conductivity, which eases the radiation of ground waves, especially at VLF.
- It is located near the Tyrrhenian Sea's shoreline, in a very favorable position for communications with Italian colonies in Africa and with the Americas.
- It is located almost halfway from Rome, Italy's capital, and Milan, Italy's main industrial city, and it could be easily connected to both of them via terrestrial telegraph lines.
- Nearby cities, Pisa and Leghorn, have good connections with the rest of the country.
- Leghorn hosts the IRN's Academy.
- The Coltano area was an estate of the King of Italy, Vittorio Emanuele III, who enthusiastically agreed to make it available for Marconi's project.
- In his youth, Marconi spent some periods in Leghorn, where, at the age of 14, he took lessons on electrical science from Prof. Vincenzo Rosa. Thus, Marconi was quite familiar with the area between Leghorn and Pisa.



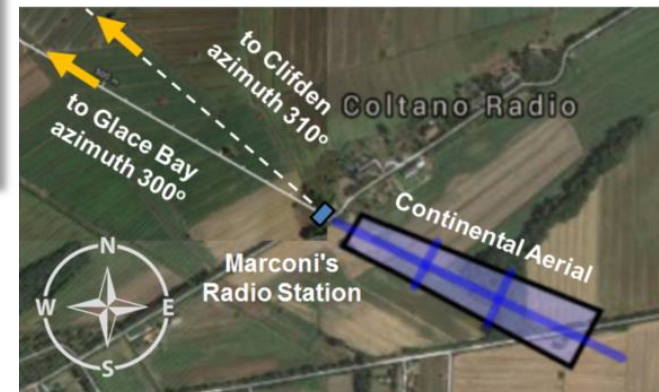
The Radiotelegrafic Station "G. Marconi"



The Antennas

The Transmitter

- Transmitter type: spark gap
- Radiated power: 14 kW
- Band: longwaves (LW)
- Carrier frequency: 43 kHz
- Carrier wavelength: 7000 m
- Station's overall power consumption : 300 kW



**19 November 1911,
first transmission**

The New York Times
Published: November 20, 1911



"The long arc of telecommunication"

FIRST WIRELESS FROM ITALY

Marconi Sends Greetings to The Times Across 4,000 Miles of Space.

LONGEST DISTANCE YET

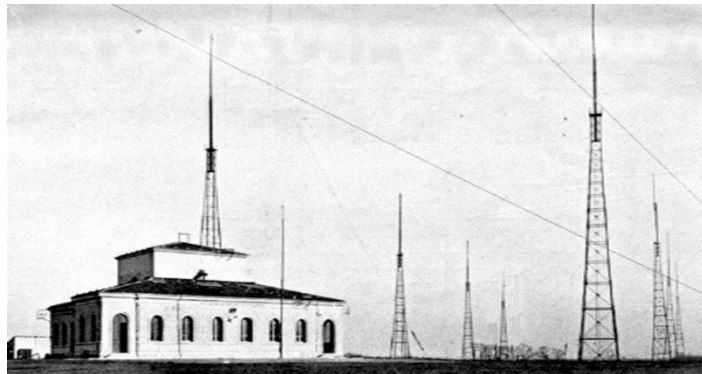
Marks the Opening of New Station at Coltano, the Most Powerful in the World.

COVERS TENTH OF THE EARTH

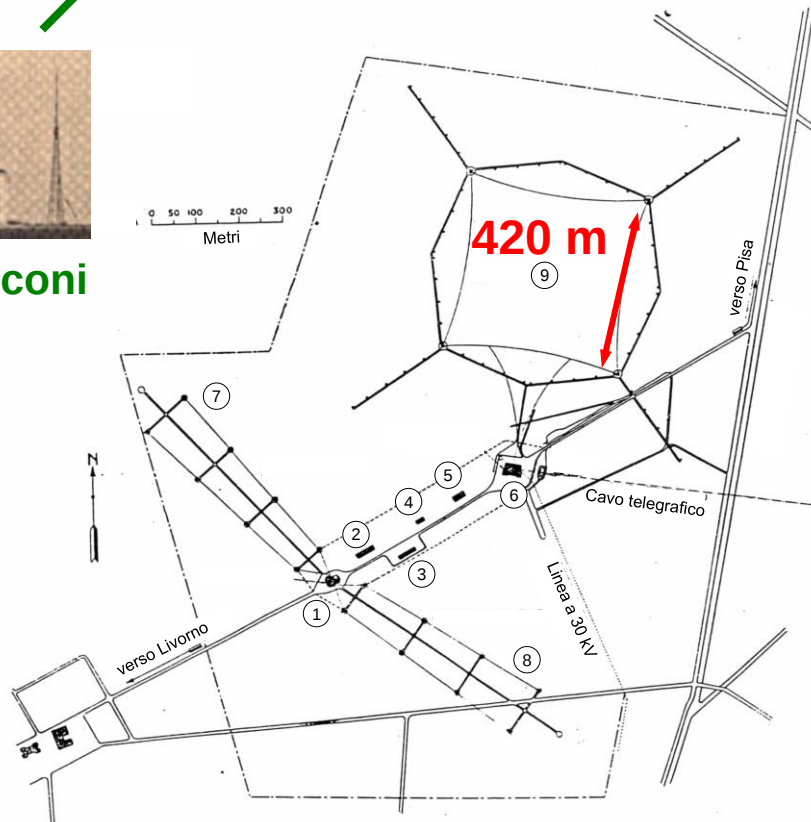
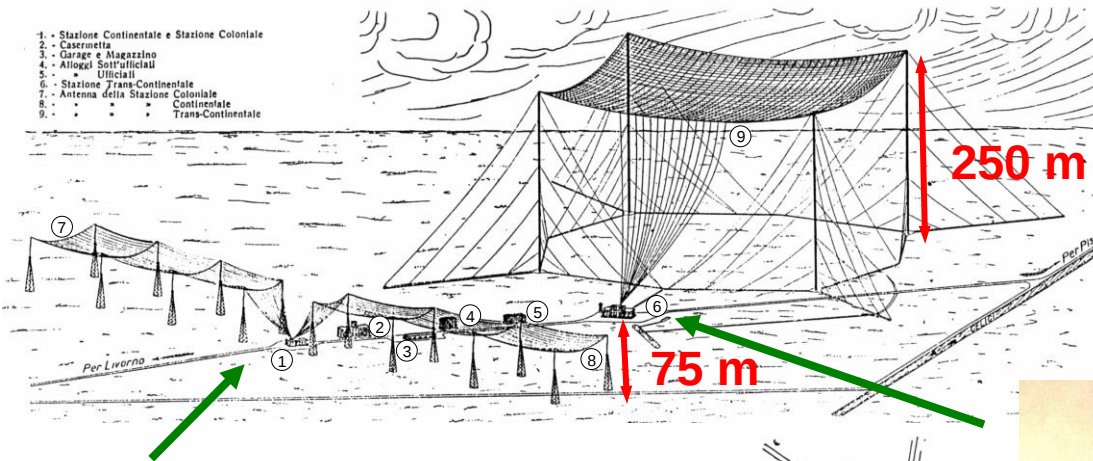
Sends its Waves One-third Way Round in All Directions—Planned to Reach the Argentine.

Four thousand miles from Coltano, Italy, to Glace Bay, Nova Scotia, was covered in the greeting reproduced above sent by wireless to THE NEW YORK TIMES last night. This is the greatest distance a wireless message has ever traveled. It exceeds by 2,250 miles the news Marconigrams regularly sent to THE TIMES from Clifden, Ireland. The brief message, which was signed by Cavaliere Guglielmo Marconi, the inventor of wireless, marked the opening of the new station at Coltano, near Pisa, the most powerful in the world. The message was transmitted over the land lines from Glace Bay to THE TIMES office.

In transmitting the Coltano message to Glace Bay the electric impulses traveled 4,000 miles in every direction from the sending station, so that at the minimum the extreme distance between the furthest points at which the impulses were effective was 8,000 miles, or approximately one-third of the way around the earth. The area of the territory with Coltano as the centre over which the message could have been picked up was equivalent to more than one-tenth of the earth's surface.



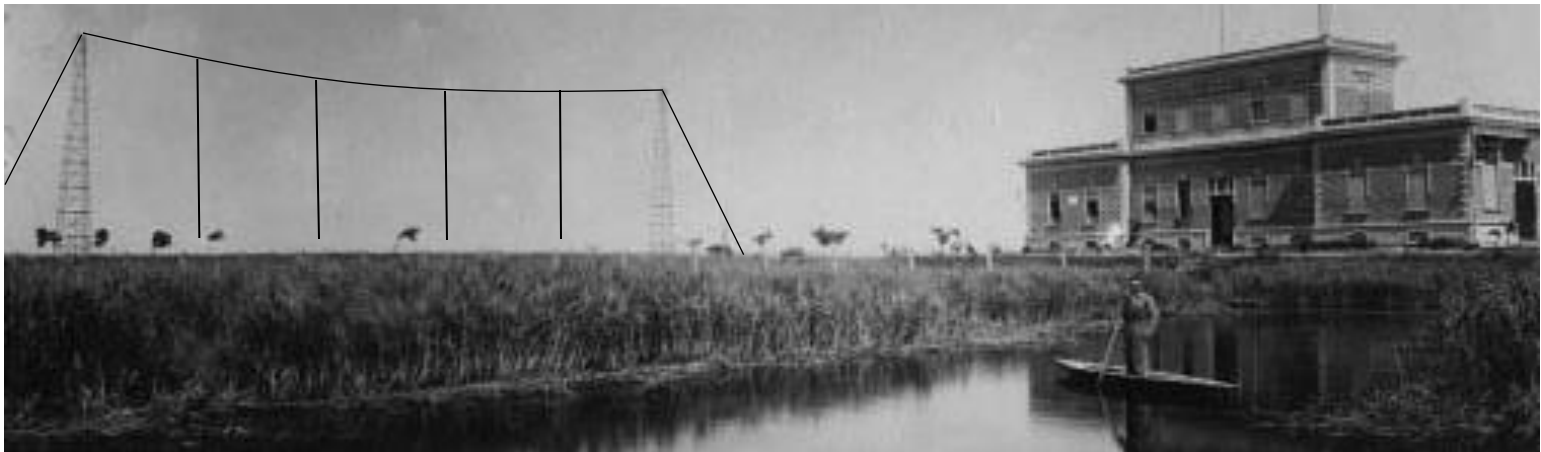
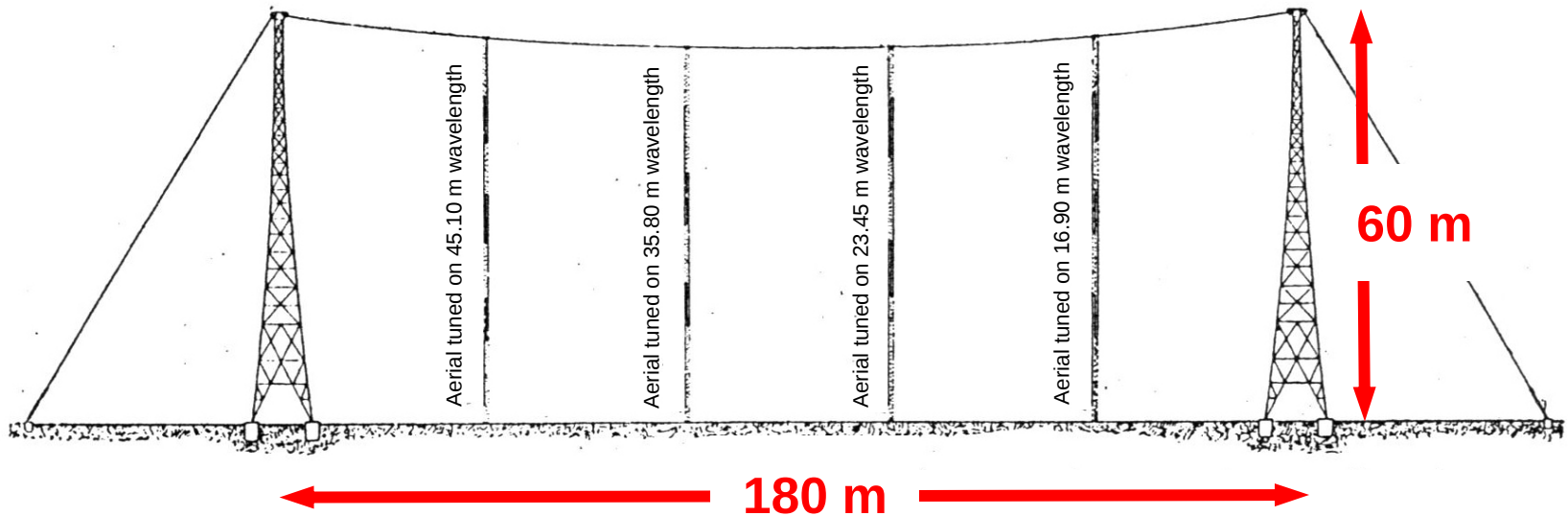
Coltano Radio Center in 1923 - **Coltano 2.0**



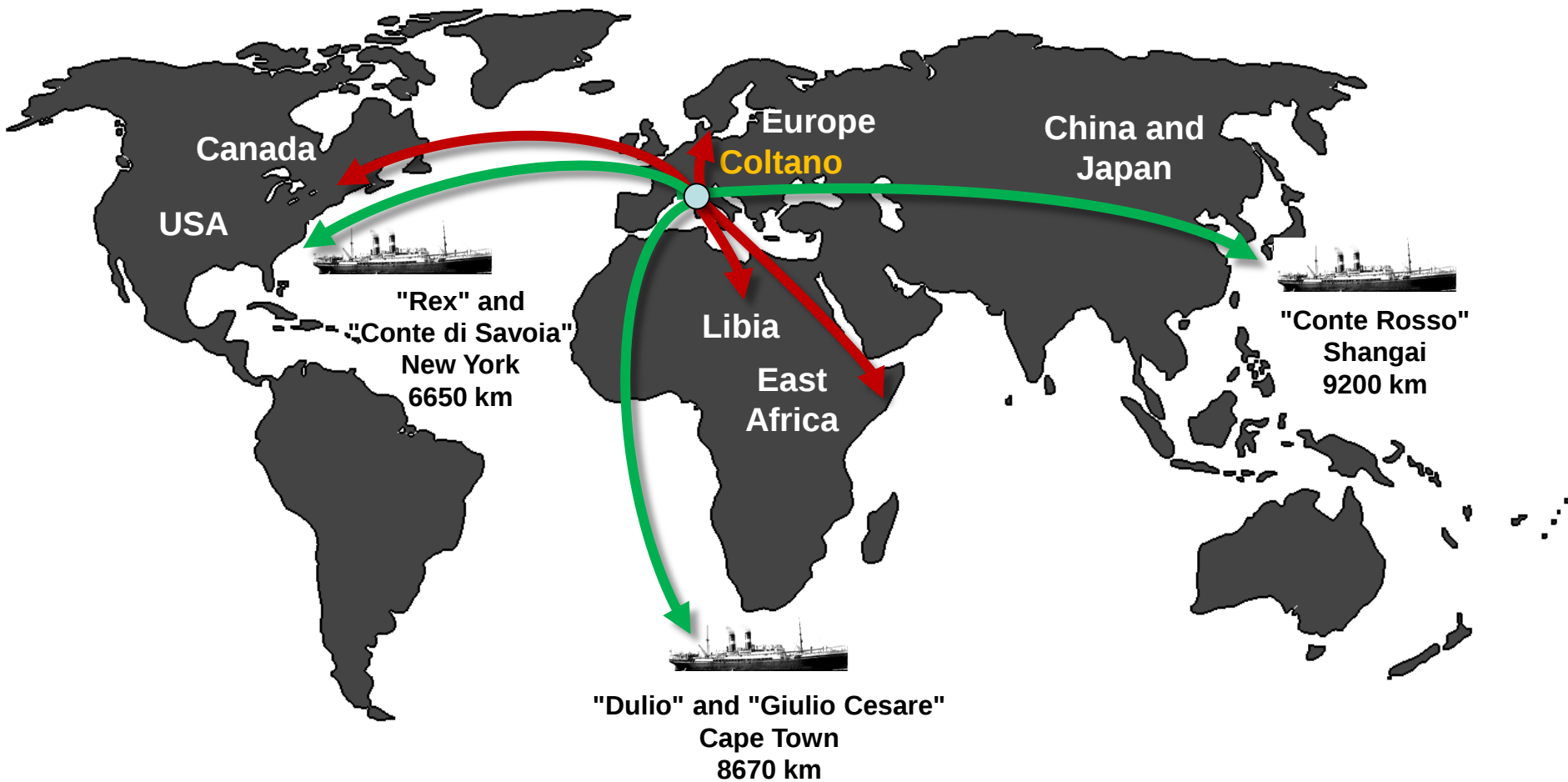
Coltano Radio Center in 1930 - **Coltano 3.0**

Upgrade for Radiotelegraphic and also Radiotelephonic long-range maritime service
Migration from Longwaves to Shortwaves

4 Franklin-type HF omnidirectional vertical antennas (wavelengths 15-50 m)



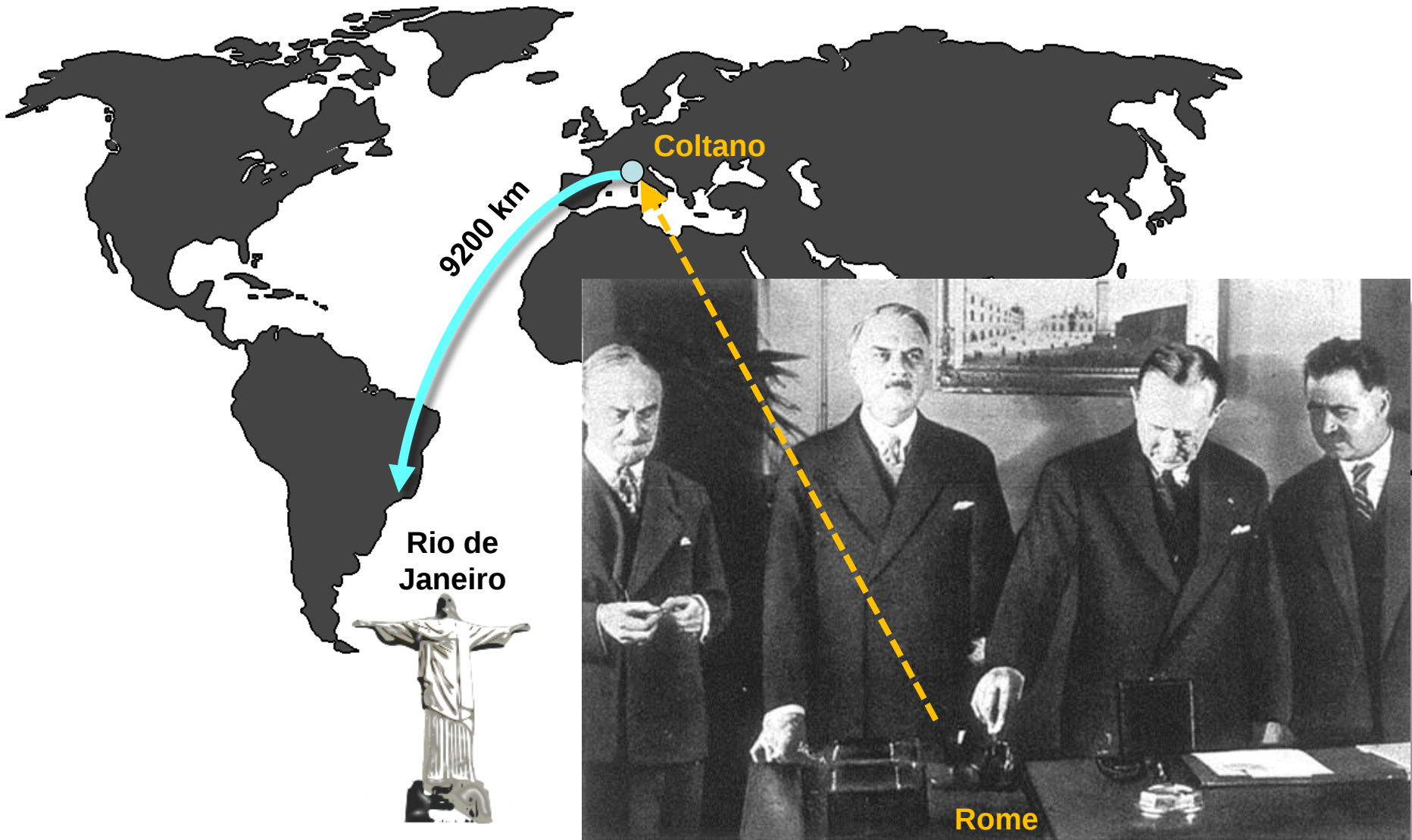
Coltano: Italy's maritime teleport (1923-1940)



- Morse, $f < 100$ kHz
- Morse & Telephony, HF

12 October 1931

Guglielmo Marconi, in Rome, remotely switches on the lights of the statue of Christ in Rio, via an HF intercontinental radio link from Coltano



1944, the end of Coltano radio center

14 June. German troops blew up the antennas and the New Radio building during their retreat.
The Palazzina Marconi was unused since many years and it was spared from destruction.

Coltano today: the Palazzina Marconi in ruins



A new hope for Coltano: from ruins to rebirth?

- Early this year the "*Demanio dello Stato*" (administration of state property) which is the institution currently owning the Palazzina Marconi, handed over the building to the Municipal Administration of Pisa.
- The latter, in order to gain the full property of the Palazzina Marconi, shall first secure the building, so as to stop the deterioration process and to allow in situ surveys. Then, it shall present a complete project for the restoration of the building, devising its future use, together with the relevant funding sources.
- The recovery plan, which is still under definition, envisages an intervention funded by the Municipal Administration of Pisa on the space around the building and aimed at creating a tourist area accessible by the public, with itineraries and all the necessary services.
- The restoration of the building should be instead financed by the private sponsor Intracom Telecom, a global telecommunication systems & solutions vendor. The "*Officine Marconi Coltano*" a local non-profit organization made of volunteers, researchers, and enthusiasts of radiocommunications, will act as a steering committee of the reconstruction process.
- The restored building could be dedicated to one or more of the following utilizations: museum of telecommunications, auditorium, research center, laboratories, business incubator, etc.

Thanks for Your Attention

For questions and comments, please contact filippo.giannetti@unipi.it

