

EARTHQUAKES AND STORY MAPS



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41° Convegno Nazionale
Bologna, 7 febbraio 2023

<https://ingvterremoti.com/storymaps/>

STORYTELLING WITH MAPS

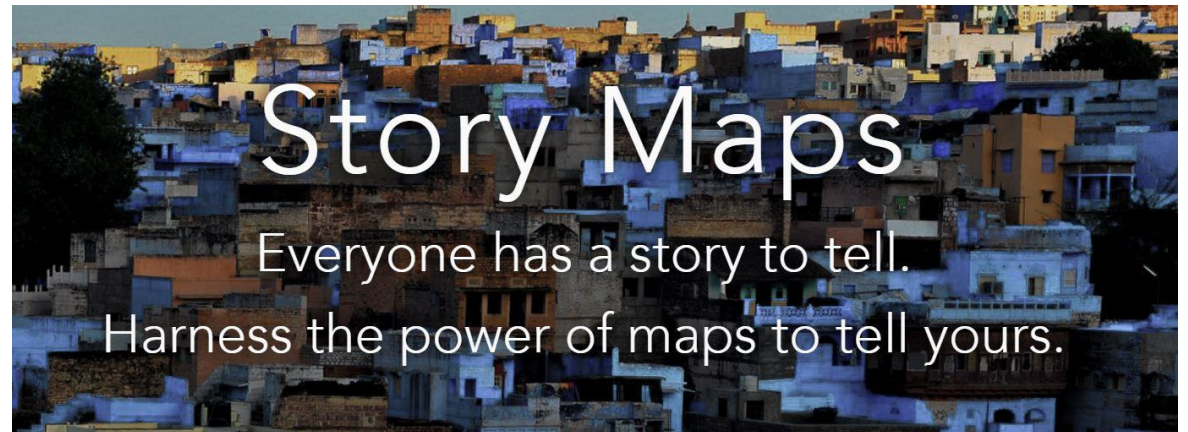


There's nothing in the world more powerful than a good story

In **storytelling**, even a **map** can become part of the story as well as videos, photos or audios.

In the last years, with the spread of **digital maps**, storytelling through maps has been used to generate a new impact and involvement of users to tell stories, creating a proper new communication discipline:

story maps = storytelling with maps.



WHAT IS A STORY MAPS

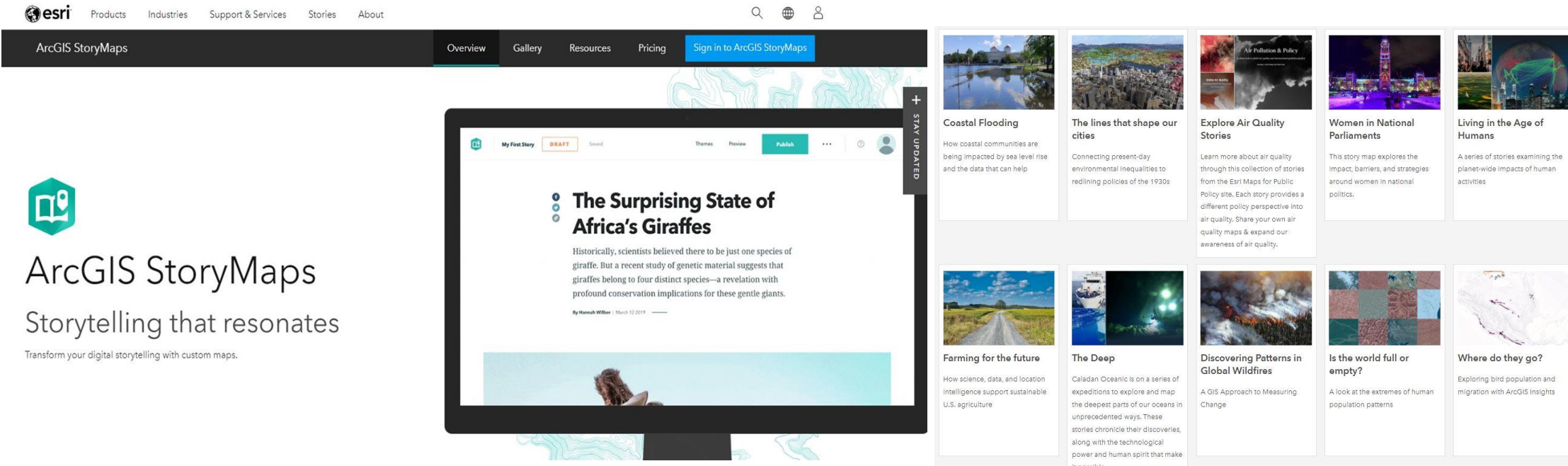
A **story maps** is an integrated set of **digital maps**, **related content** (legend, text, photos, videos, etc.) and **interaction features** (pan / zoom, pop-up, query, select, etc.) that make it an easily understandable and an immediate information and communication product.



A **story maps** can give your narrative a stronger sense of place, illustrate spatial relationships, and add visual appeal and credibility to ideas.

ARCGIS STORY MAPS

ESRI ArcGIS online technology (<https://www.arcgis.com/>) is used to create story maps and dashboard. It is a cloud-based sharing platform that allows you to build web maps by integrating your datasets with a rich collection of basic geographic data with worldwide coverage. With these **web maps it is possible to create, using appropriate templates available, different types of web applications, to publish and share them on the web.**



The screenshot shows the ArcGIS StoryMaps website. At the top, there is a navigation bar with the ESRI logo and links for Products, Industries, Support & Services, Stories, and About. Below this is a dark header with 'ArcGIS StoryMaps' and a 'Sign in to ArcGIS StoryMaps' button. The main content area features a large preview of a story map titled 'The Surprising State of Africa's Giraffes'. To the right of the preview is a grid of 12 smaller story map thumbnails, each with a title and a brief description. The thumbnails include: Coastal Flooding, The lines that shape our cities, Explore Air Quality Stories, Women in National Parliaments, Living in the Age of Humans, Farming for the future, The Deep, Discovering Patterns in Global Wildfires, Is the world full or empty?, and Where do they go?.

HOW TO CREATE A STORY MAPS

multimedia
data

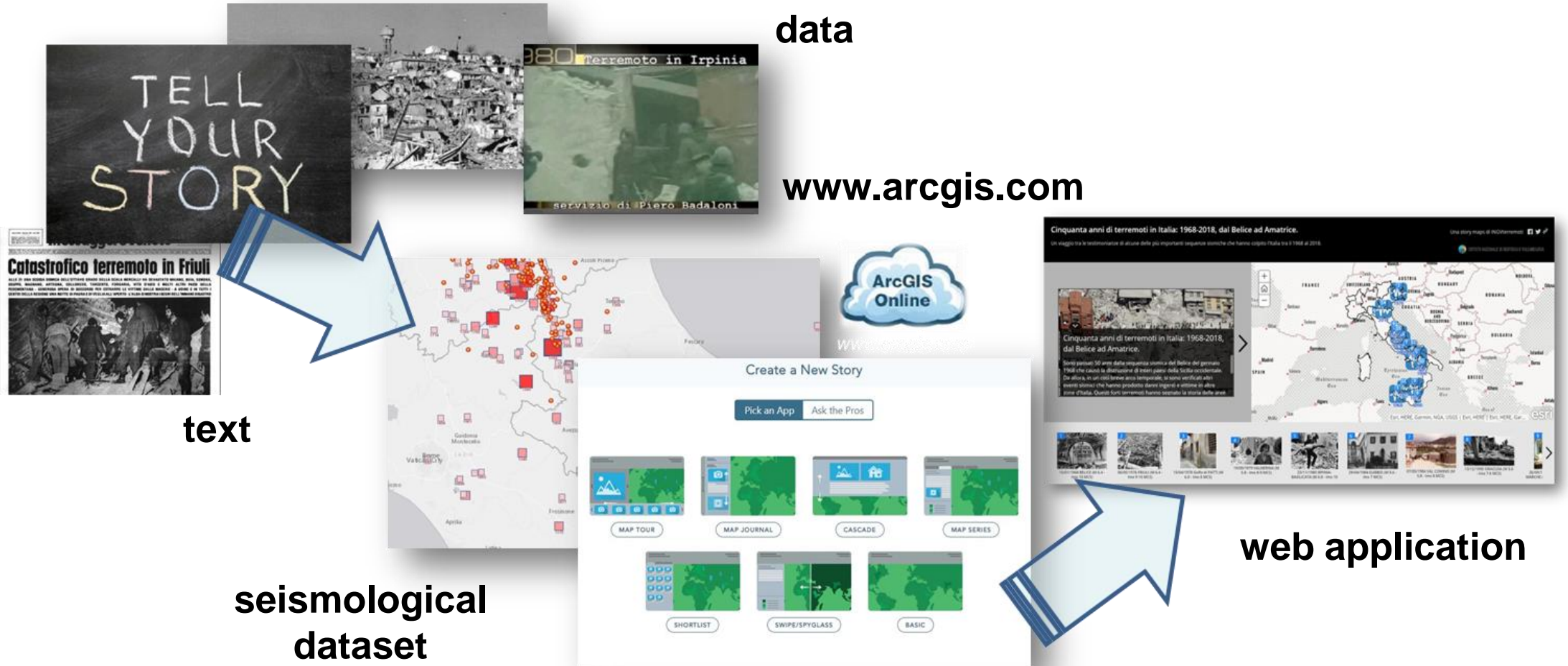
www.arcgis.com

text

seismological
dataset

web template

web application



ARCGIS DASHBOARDS

After the creation of the story maps, it was decided to also use the web applications of the **dashboards** to make different tools for viewing the datasets and related attributes available, in order to create **simple infographics**, very effective to communicate information to inexperienced users.



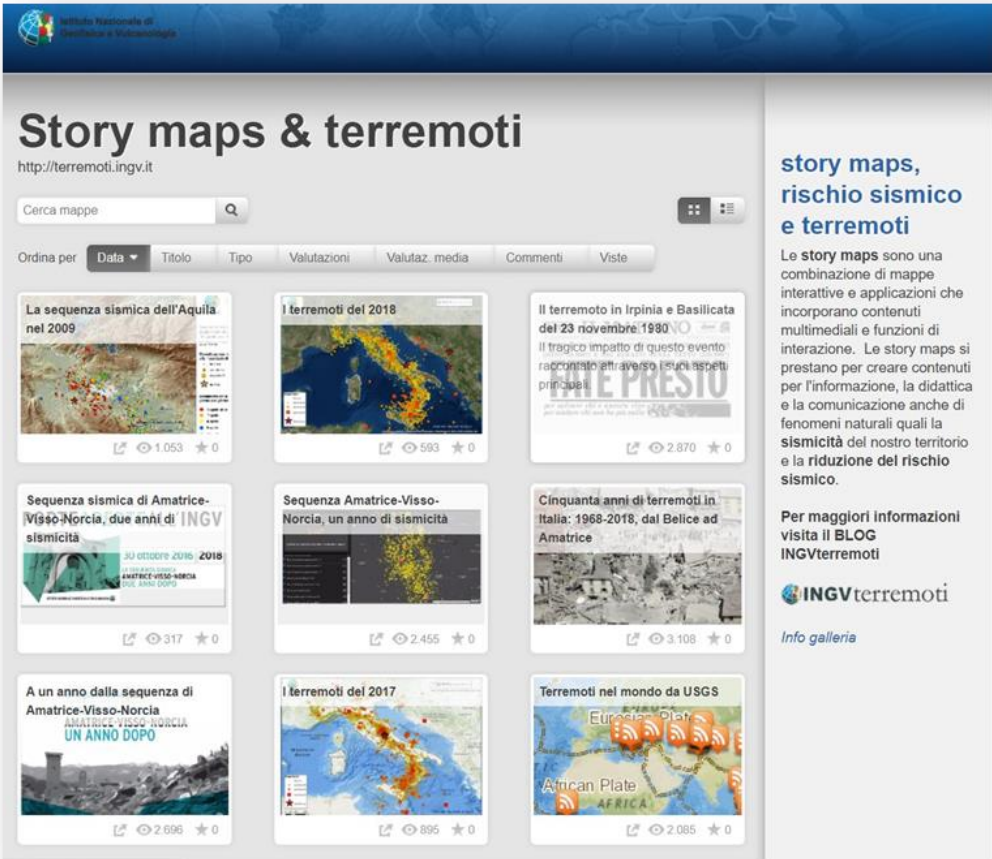
ArcGIS Dashboards

Your information at a glance, designed for those who need it



<https://www.arcgis.com/apps/dashboards/>

STORY MAPS & TERREMOTI



The screenshot shows the 'Story maps & terremoti' section of the INGV website. The page features a search bar, sorting options (Data, Titolo, Tipo, Valutazioni, Valutaz. media, Commenti, Viste), and a grid of nine story map thumbnails. Each thumbnail includes a title, a small map or image, and engagement statistics (views and stars). The thumbnails are:

- La sequenza sismica dell'Aquila nel 2009 (1,053 views, 0 stars)
- I terremoti del 2018 (593 views, 0 stars)
- Il terremoto in Irpinia e Basilicata del 23 novembre 1980 (2,870 views, 0 stars)
- Sequenza sismica di Amatrice-Visso-Norcia, due anni di sismicità (317 views, 0 stars)
- Sequenza Amatrice-Visso-Norcia, un anno di sismicità (2,455 views, 0 stars)
- Cinquanta anni di terremoti in Italia: 1968-2018, dal Belice ad Amatrice (3,108 views, 0 stars)
- A un anno dalla sequenza di Amatrice-Visso-Norcia UN ANNO DOPO (2,696 views, 0 stars)
- I terremoti del 2017 (895 views, 0 stars)
- Terremoti nel mondo da USGS (2,085 views, 0 stars)

On the right side of the page, there is a sidebar with the heading 'story maps, rischio sismico e terremoti'. Below the heading, there is a paragraph explaining that story maps are a combination of interactive maps and applications that incorporate multimedia content and interaction functions. It states that story maps are used for information, didactic purposes, and communication of natural phenomena like seismicity and seismic risk reduction. At the bottom of the sidebar, there is a link to the 'Info galleria' and the INGV terremoti logo.

The first gallery of story maps published by INGV

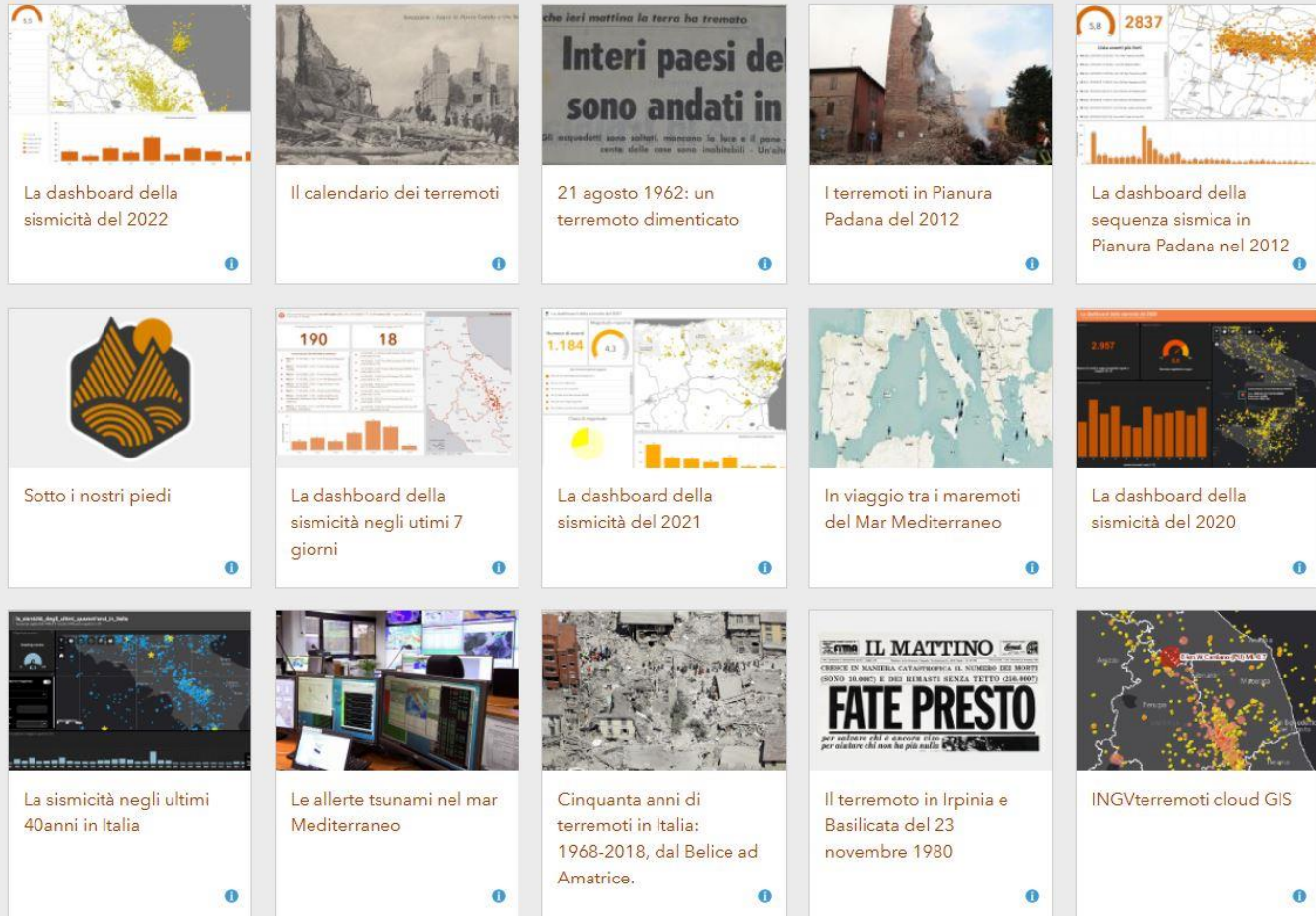
The increasing diffusion of story maps as a new communication and information channel allowed the **Istituto Nazionale di Geofisica e Vulcanologia** to test this new technique in the field of seismic risk reduction.

The technology of ESRI ArcGIS online (www.arcgis.com) led to realization of some **story maps and dashboards** to show aspects of our territory related to seismic and tsunami risk.

The story maps have been also used as a support in **daily communications on earthquakes** together with development of the information platform **INGVterremoti**.

STORY MAPS, DASHBOARDS & EARTHQUAKES

Le story maps di INGVterremoti



Since **2013**, over **25 story maps and dashboards** about some of the most important earthquakes and tsunamis occurred in the past in Italy and the Mediterranean have been published; these have been useful also to analyze some of the recent seismic sequences that have affected the Italian territory.

The total views of the story maps and dashboards published were about **110 thousand**.

The recent gallery of story maps and dashboards published by INGV

INTEGRATION WITH INGVTERREMOTI

Story maps and dashboards have been easily **integrated into web and social communication channels INGVterremoti** (<https://ingvterremoti.com/>) and represent a tool now necessary for disseminating information on ongoing seismicity, on the most important seismic sequences in Italy, on the earthquakes and tsunamis of the past.

A **section** is available on the blog-magazine INGVterremoti.com which **collects the main story maps and dashboards published in recent years.**



The screenshot displays the INGV terremoti website interface. At the top, the logo and navigation menu are visible. The main content area is titled "Le story maps di INGVterremoti" and lists several featured story maps and dashboards:

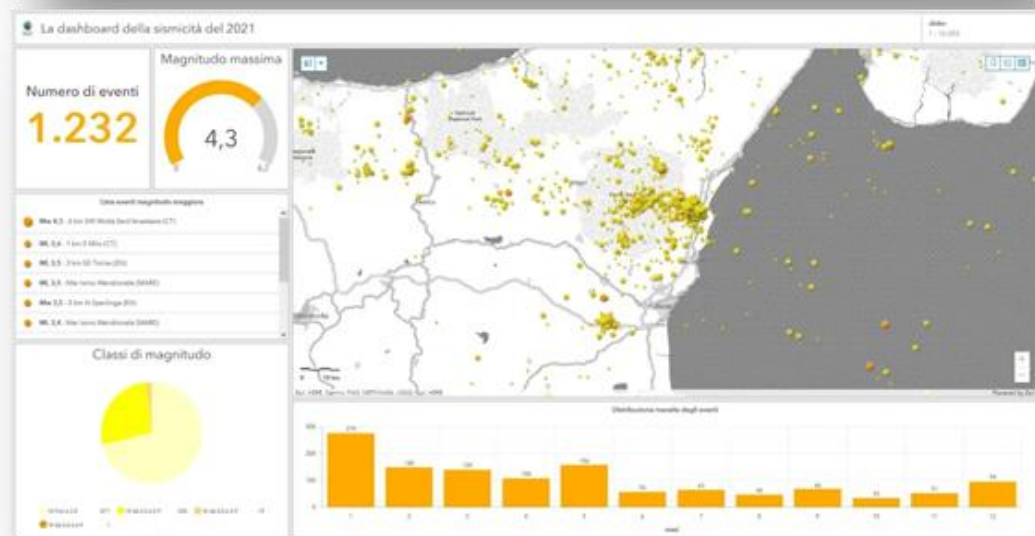
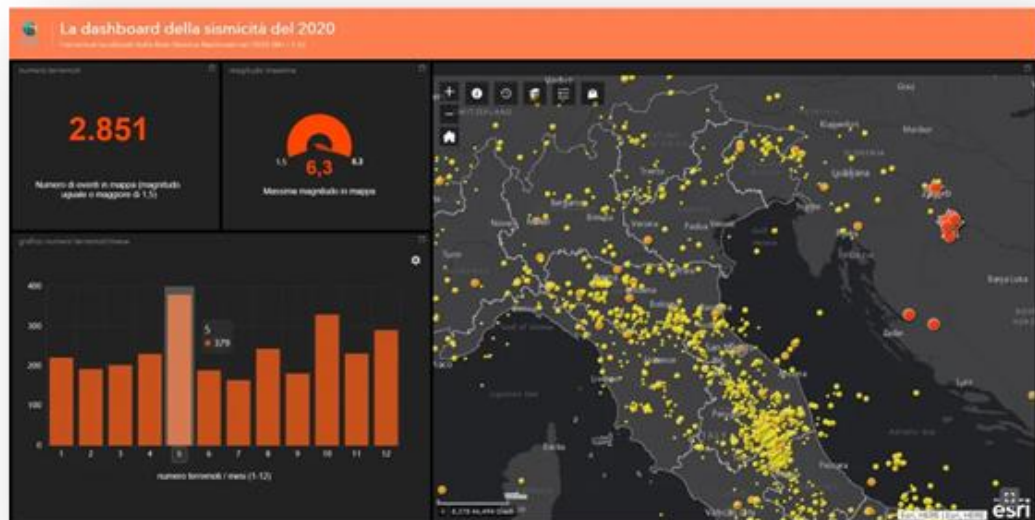
- 12 GENNAIO 2022**: SPECIALE 2022, UN ANNO DI TERREMOTI
- 20 AGOSTO 2022**: UNA STORY MAPS PER RICORDARE IL TERREMOTO DEL 21 AGOSTO 1962
- 21 MAGGIO 2022**: TERREMOTI IN PIANURA PADANA, 10 ANNI DOPO: I NUMERI DELLA SEQUENZA E LA DASHBOARD
- 20 MAGGIO 2022**: TERREMOTI IN PIANURA PADANA: 10 ANNI DOPO
- 13 GENNAIO 2022**: SPECIALE 2021, UN ANNO DI TERREMOTI

Below the list, a grid of four story map thumbnails is shown:

- La dashboard della sismicità del 2022**: A map of Italy with a bar chart showing seismic activity.
- Il calendario dei terremoti**: A calendar-style grid showing earthquake locations and magnitudes.
- 21 agosto 1962: un terremoto dimenticato**: A historical photograph of a destroyed building.
- I terremoti in Pianura Padana del 2012**: A photograph of a damaged building.

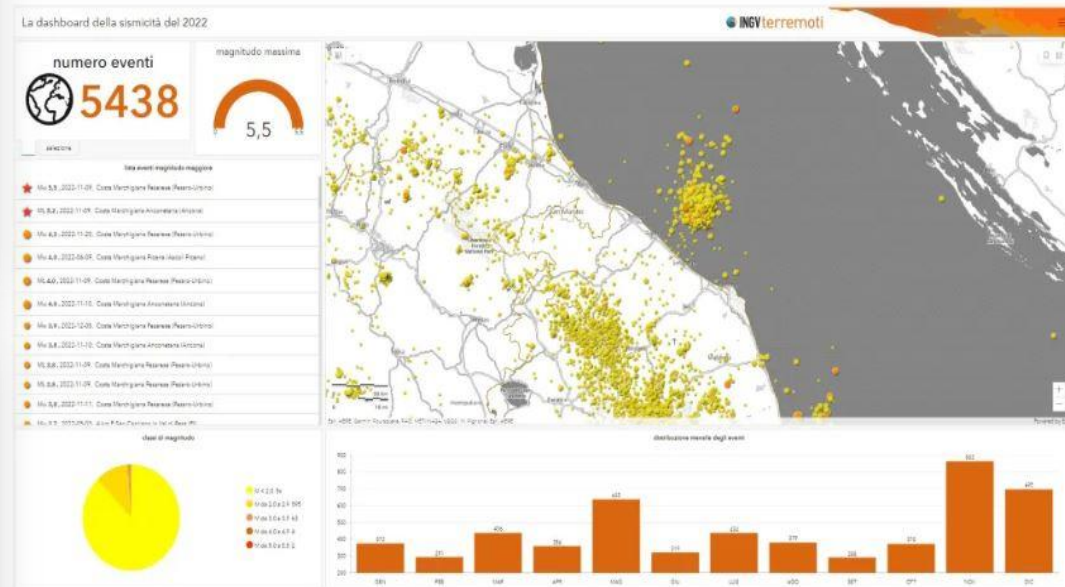
<https://ingvterremoti.com/storymaps/>

INTEGRATION WITH INGVTERREMOTI



La mappa interattiva dei terremoti del 2022

La **sismicità del 2022** registrata dalla Rete Sismica Nazionale dell'INGV viene mostrata in una **mappa interattiva (dashboard)**, disponibile nella galleria di **story maps di INGVterremoti**. In questa applicazione sono rappresentati i **16302 terremoti** classificati e tematizzati in base alla loro magnitudo. Ogni evento può essere interrogato per visualizzare i relativi parametri ipocentrali e la pagina informativa di evento dal portale terremoti.ingv.it.



Nell'applicazione sono disponibili le **infografiche** che mostrano, **per un'area scelta dall'utente sulla mappa**, il **numero di terremoti totali localizzati nel 2022**, la **magnitudo massima**, la **lista con i terremoti di magnitudo maggiore**, le **classi di magnitudo** ed infine il grafico della **distribuzione del numero di eventi nei 12 mesi dell'anno (guida all'utilizzo della dashboard)**.

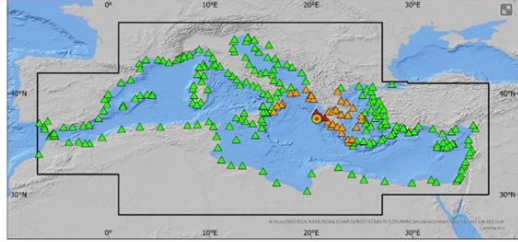
[Apri la mappa interattiva dei terremoti del 2022](#)



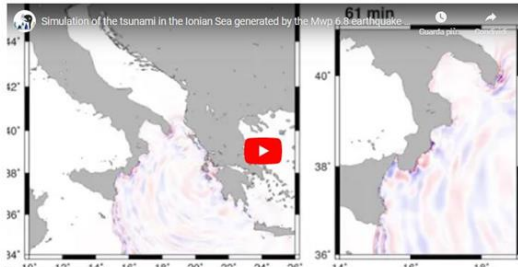
	YOUTUBE	TWITTER	MOBILE APPS	BLOG	FACEBOOK	STORY MAPS
STARTING	February 2010	March 2010	March 2011	May 2012	May 2013	May 2013
OBJECTIVE	Increasing the level of information about earthquakes in Italy, a basic step for seismic risk reduction.	Fast communication of seismic and tsunami information.	Fast communication of seismic information tailored for mobile device.	Provide quick updates and in-depth scientific information (special reports during seismic sequences and emergencies).	Fast communication of seismic and tsunami information; interaction with public.	Use of interactive maps and geographic information for seismic and tsunami storytelling
TARGET	General public	General public, media professionals	General public	General public	General public	General public
CONTENT	In-house short video, including animations and interviews with INGV researchers	Automatic and revised earthquake parameters (location and magnitude), blog post, quick comment	Automatic and revised earthquake parameters (location and magnitude), blog post, maps, mobile interface for content of INGV website	Articles about Italian and global seismicity, activities of INGV researchers, photonews, real time in-depth information during seismic sequence.	revised earthquake parameters (location and magnitude), blog post, quick comment, replay to user comment	Cloud-GIS applications that integrate digital maps, related content and interaction features on INGVterremoti gallery
POPULARITY	13,300+ subscribers	285,000+ followers	2,000,000 downloads	8,000,000 unique visitors	235,000+ followers	100,000+ views
TOTAL ACTIVITY	122 videos	26,000+ tweets	3 release for IOS and Android; the last in 2022	~1,000 posts	20,000+ posts	25+ story maps and dashboards
NOTE	6,200,000+ total views	Awarded the most useful Twitter account in Italy (2012)	Current rating 4+	23,400,000+ total views	Average daily post coverage 10,000+	Integration in INGVterremoti channels

TSUNAMI

Le allerte tsunami nel mar Mediterraneo



Mappe dei forecast point colorati in base al livello dell'allerta sulle coste del Mediterraneo.
 Il CAT ha inviato il primo messaggio di allerta 8 minuti dopo la scossa di terremoto. Lo stato di emergenza è perdurato per circa 5 ore e 40 minuti. Il messaggio di fine evento è stato inviato alle ore 04:48 UTC. Il flusso di comunicazione ha visto l'invio di 6 messaggi, compreso il messaggio di apertura e quello di chiusura evento.



Simulazione della tsunami del mar Ionio.

Le piccole onde di tsunami hanno raggiunto l'Italia dopo modesta variazione del livello del mare.

di un sistema di controllo del mare di "tsunami" tsunami i come "tsunami" tsunami è il mare di origine una principale è il Mediterraneo, che con la sua vasta ricerca e della consapevolezza osentoro di monitorare solo tsunami, quali le frane, le Al. Gli tsunami di origine Ma di proporzioni grandi



In viaggio tra i maremoti del Mar Mediterraneo

Dal 365 d.C. ad oggi: un percorso interattivo per raccontare i maremoti accaduti nel Mar Mediterraneo

“ Il Mar Mediterraneo è un mare semi-chiuso che comunica con l'Oceano Atlantico attraverso lo Stretto di Gibilterra e con l'Oceano Indiano attraverso il Canale di Suez. Il bacino è incastonato

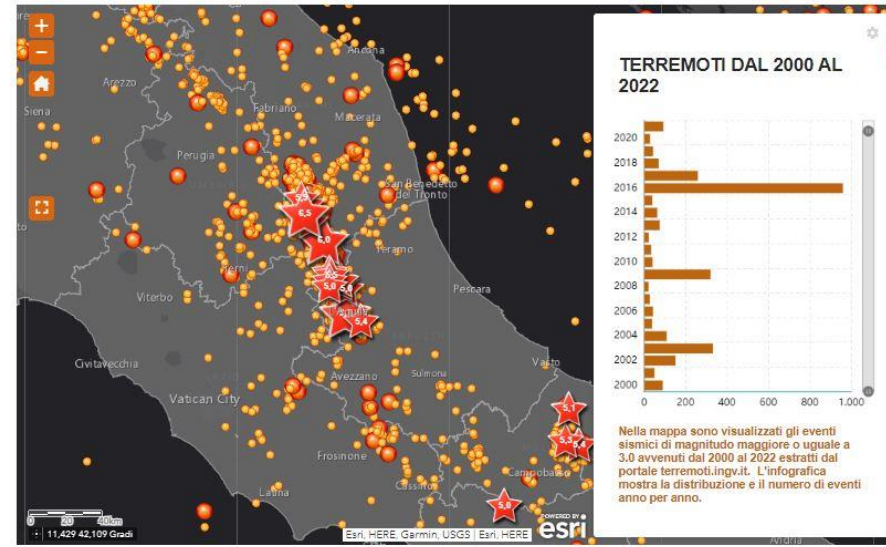
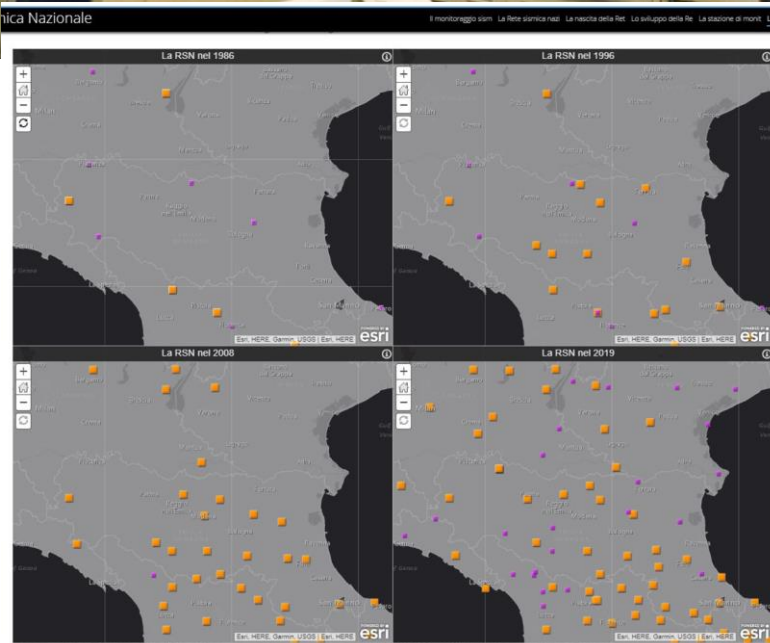
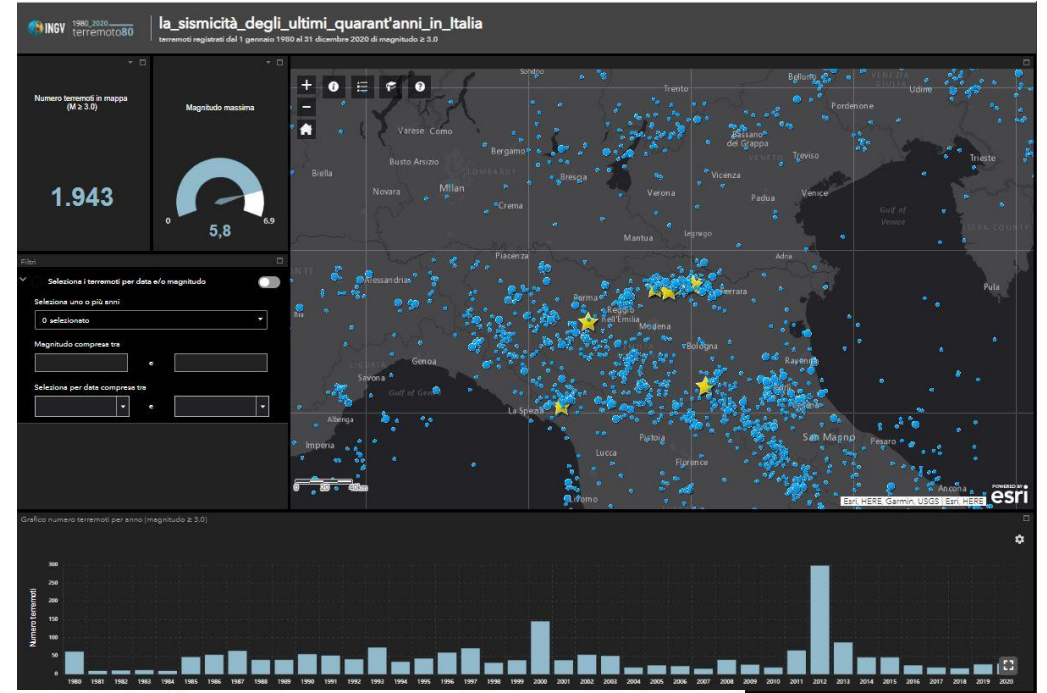
Isola di Creta 365 d.c.
IL TERREMOTO: La mattina del 21 giugno 365 d.C. un terremoto di magnitudo stimata tra 8 e 8.5 colpisce l'area orientale del Mar Mediterraneo. Recenti studi (Pararas-Carayannis, 2011; Kelly, 2004) hanno valutato che l'epicentro del terremoto fosse vicino l'isola greca di Creta, lungo l'Arco ellenico.
IL MAREMOTO: Il terremoto generò un maremoto di grandi dimensioni che interessò i territori del Peloponneso, della Beozia, la Sicilia e la Dalmazia. L'entità del fenomeno fu ben resa dal poeta greco Monachos che lo descrisse come: "terremoto cosmico". Negli scritti vengono poi riportate alcune cifre specifiche: 50.000 persone annegate a causa del maremoto; navi spinte dalla forza del mare nell'entroterra, per circa 32 chilometri in pianura e per 11 chilometri in collina. Scrittori egiziani descrissero il

SEISMIC MONITORING

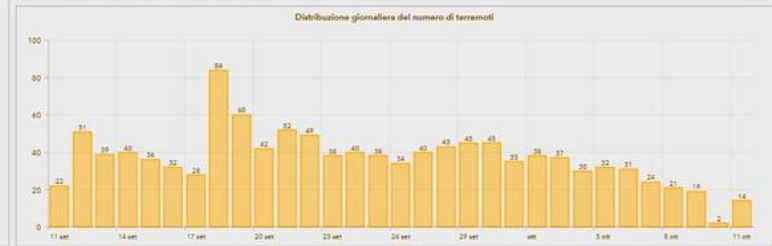
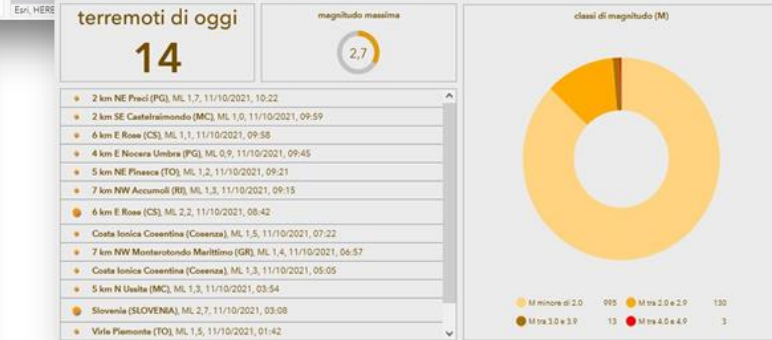
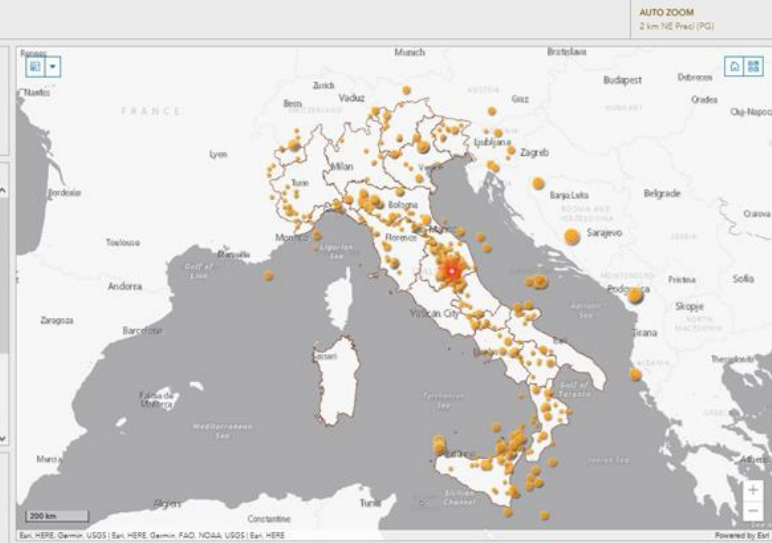
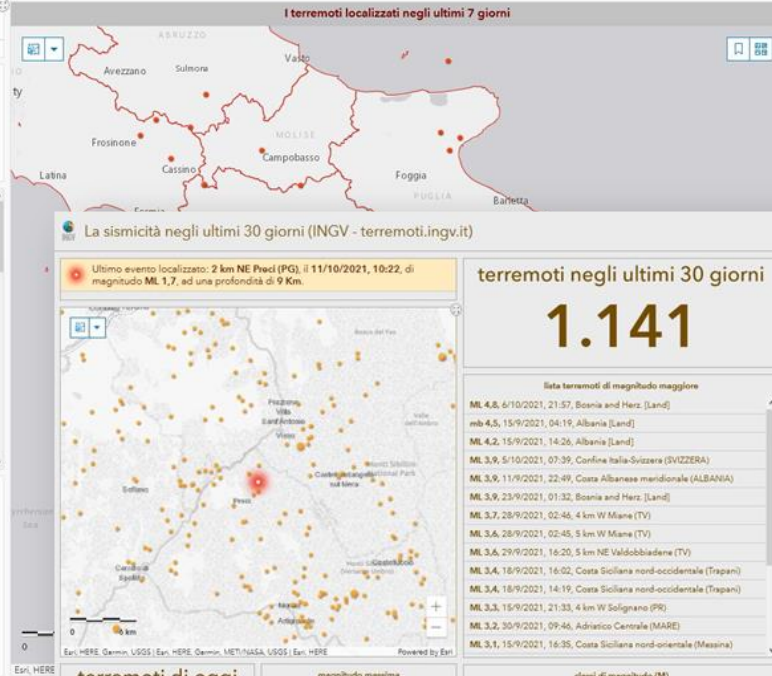
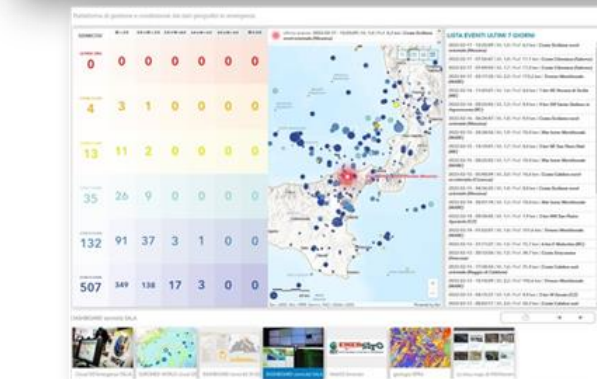
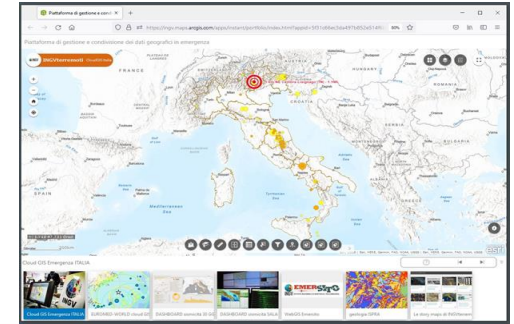
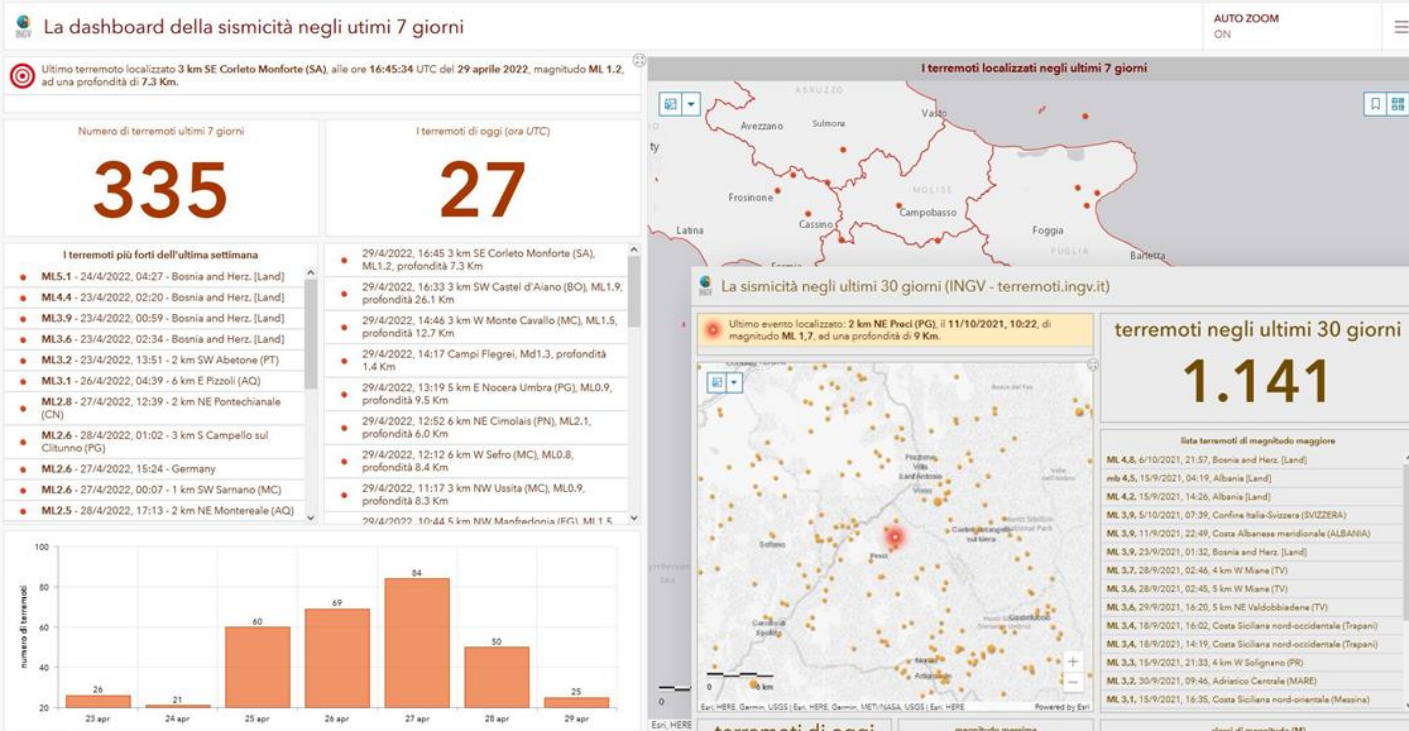


Lo sviluppo della Rete Sismica Nazionale

Come si registravano i terremoti prima del terremoto in Irpinia del 1980? L'evoluzione della Rete Sismica Nazionale dai pochi punti di osservazione sparsi sul territorio nazionale fino alle centinaia di stazioni multiparametriche dei nostri giorni



REAL TIME SEISMICITY



INTERACTION WITH THE PUBLIC

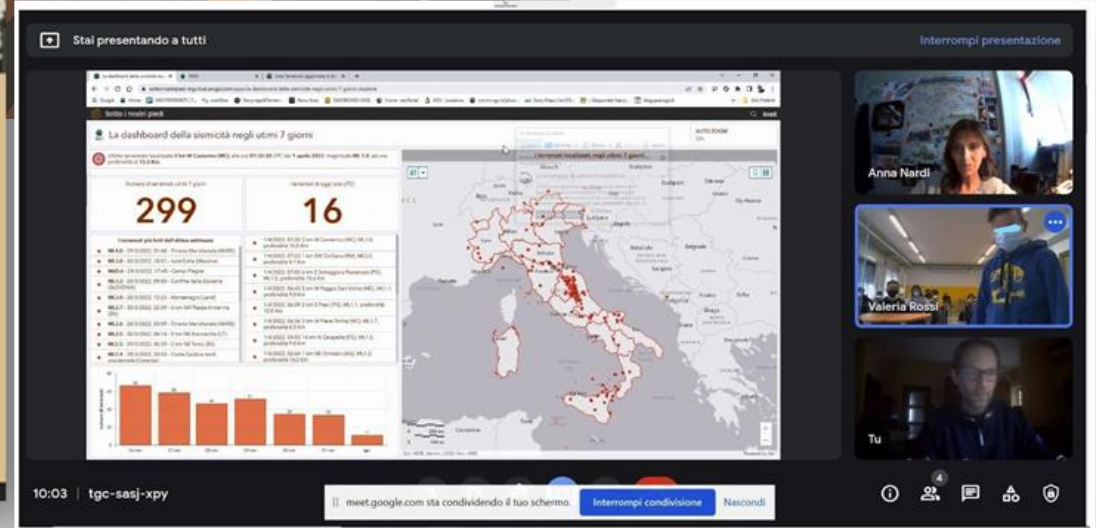


Story maps e dashboards have become a **proper tool in the dissemination events** that INGV promotes. **Touch screens** allow the creation of real exhibits where it is possible to interact with the public, demonstrating the potential of geographic information in **risk communication**.

INTERACTION WITH THE PUBLIC



Interactive online laboratory for schools



<https://sottoinostripiedi-ingv.hub.arcgis.com/>

I terremoti in Pianura Padana del 2012

Un viaggio in 10 tappe nella sequenza sismica iniziata nel mese di maggio di dieci anni fa

