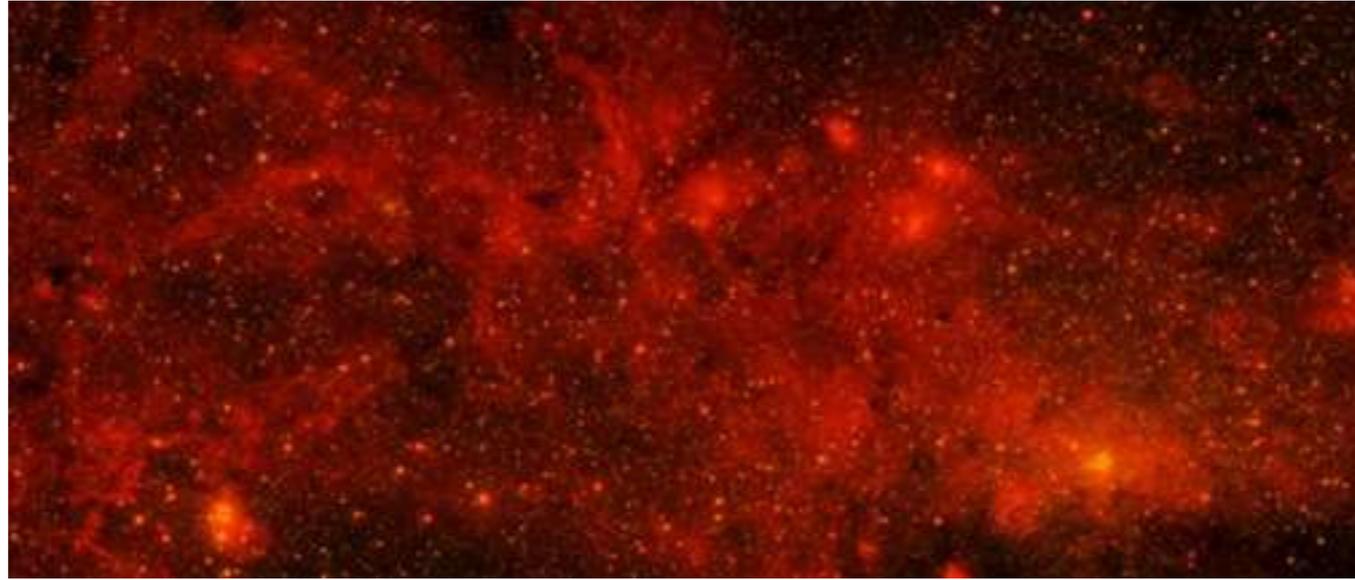


FACCIAMO LUCE SULL'UNIVERSO

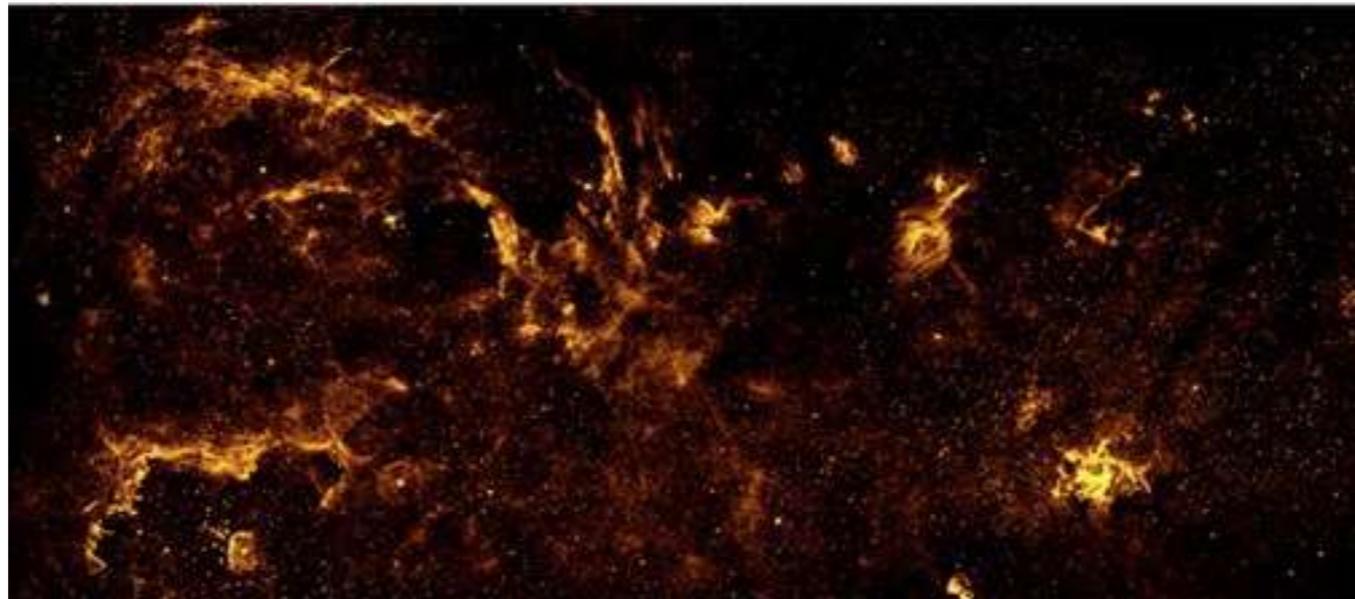
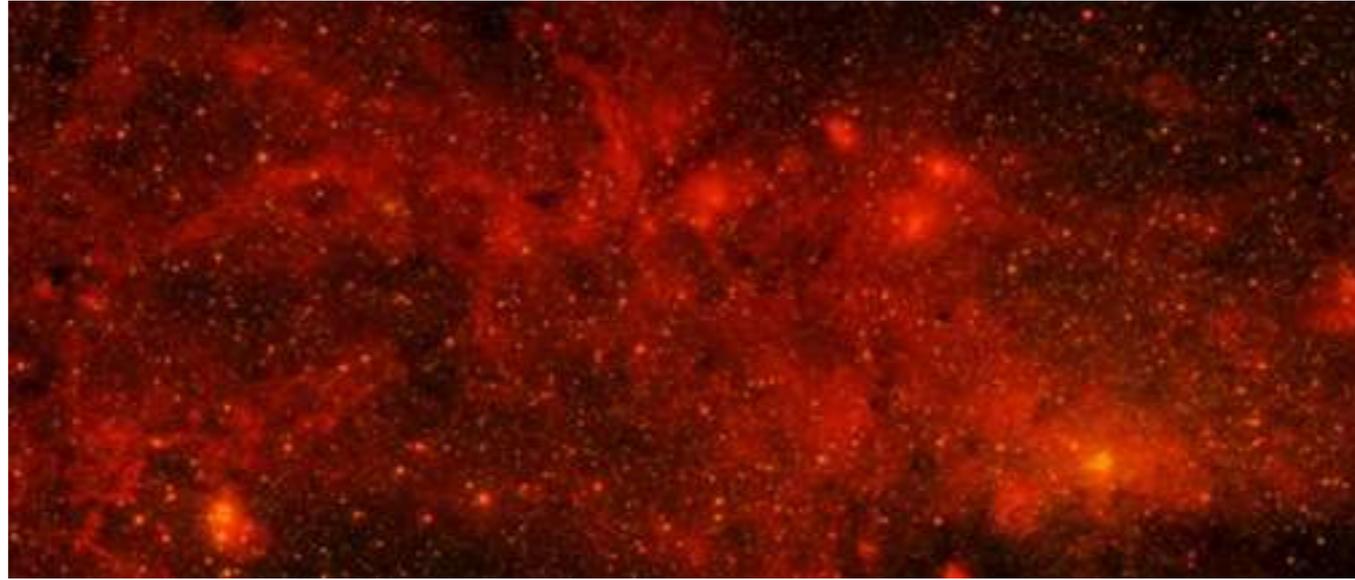


Laboratorio interattivo di
astrofisica

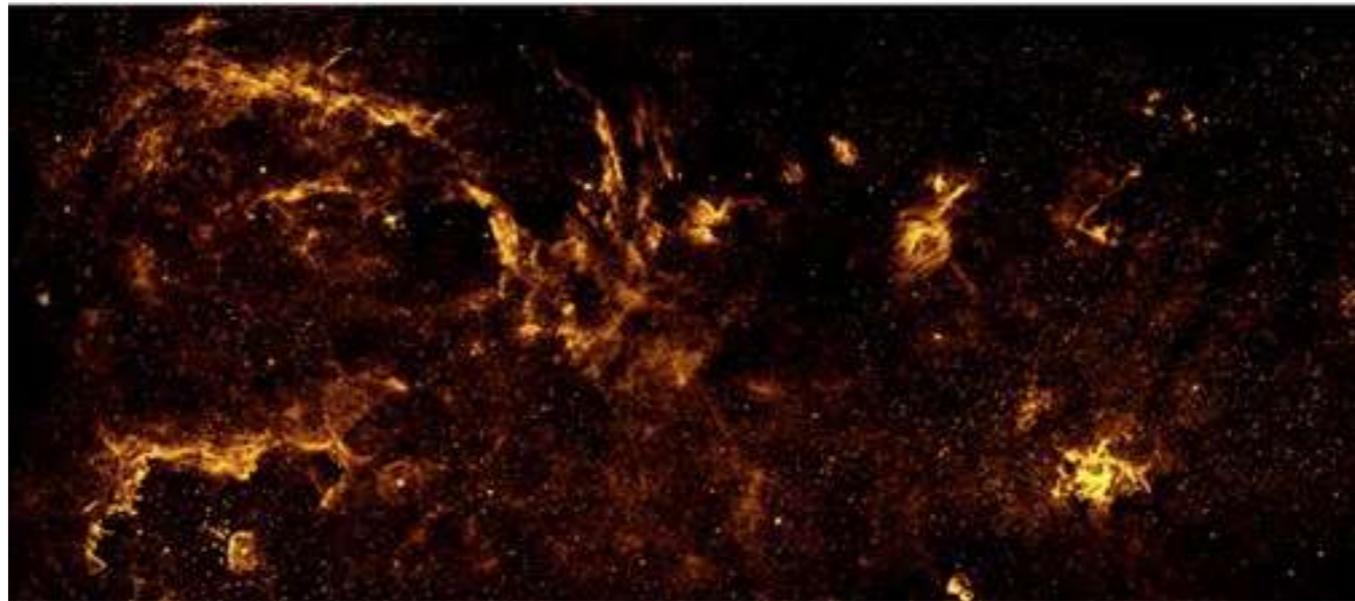
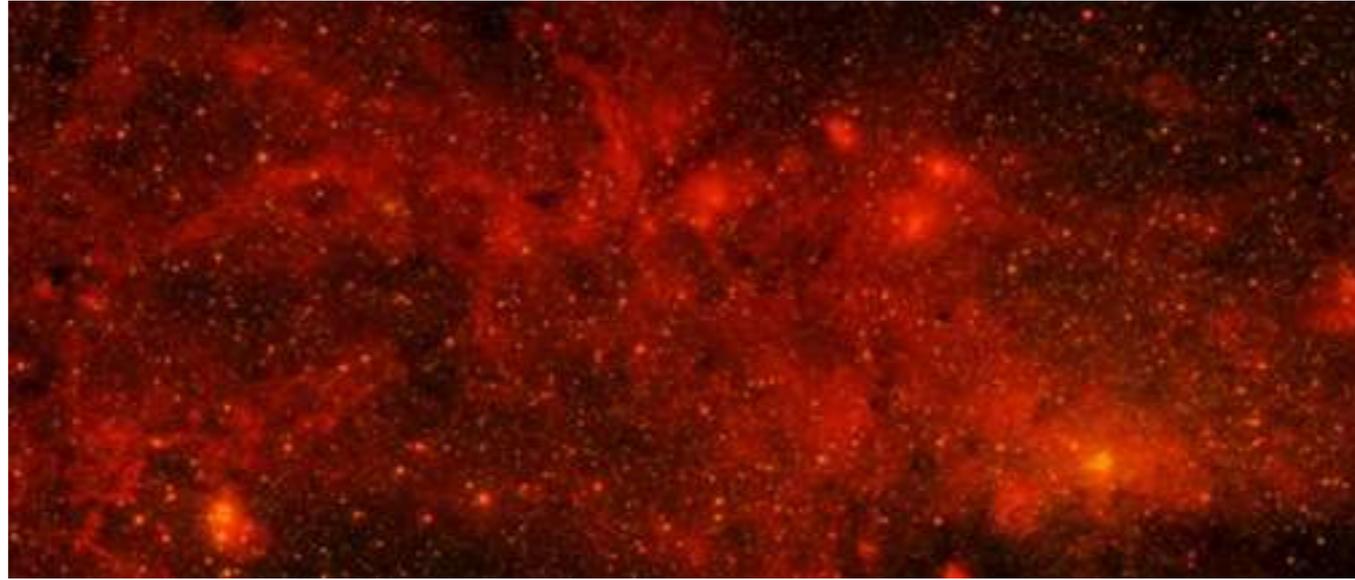
Centro della Via Lattea



Centro della Via Lattea



Centro della Via Lattea



Nebulosa Nord America



Nebulosa Nord America



Nebulosa Nord America



Nebulosa Nord America



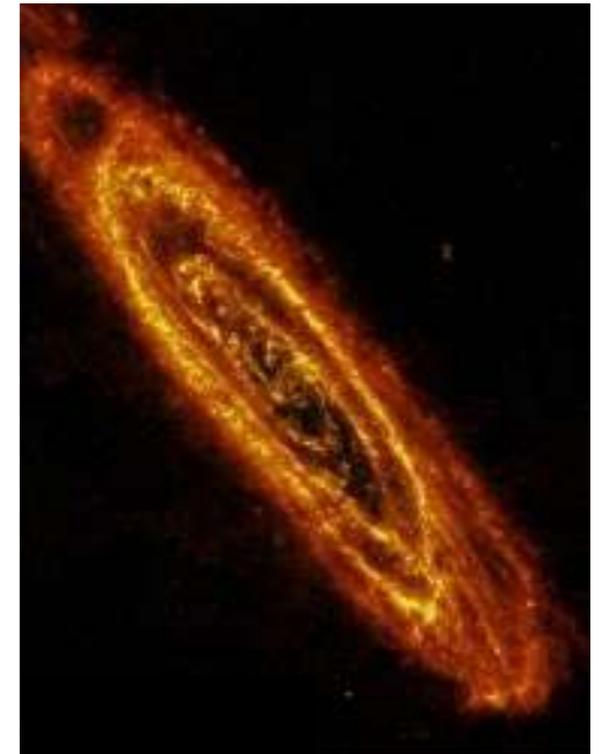
M31 - Galassia di Andromeda



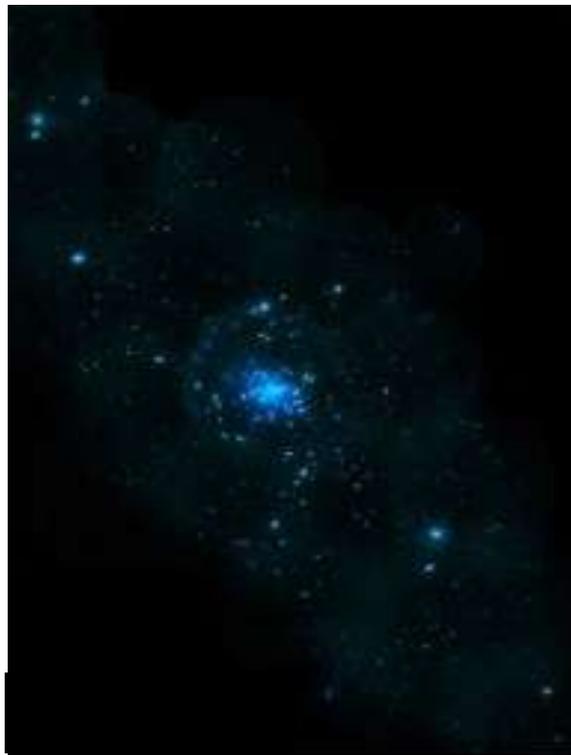
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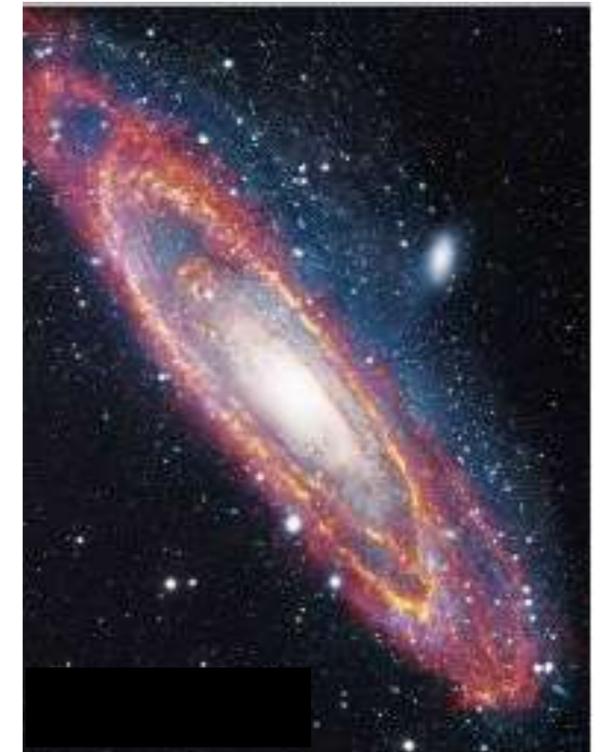
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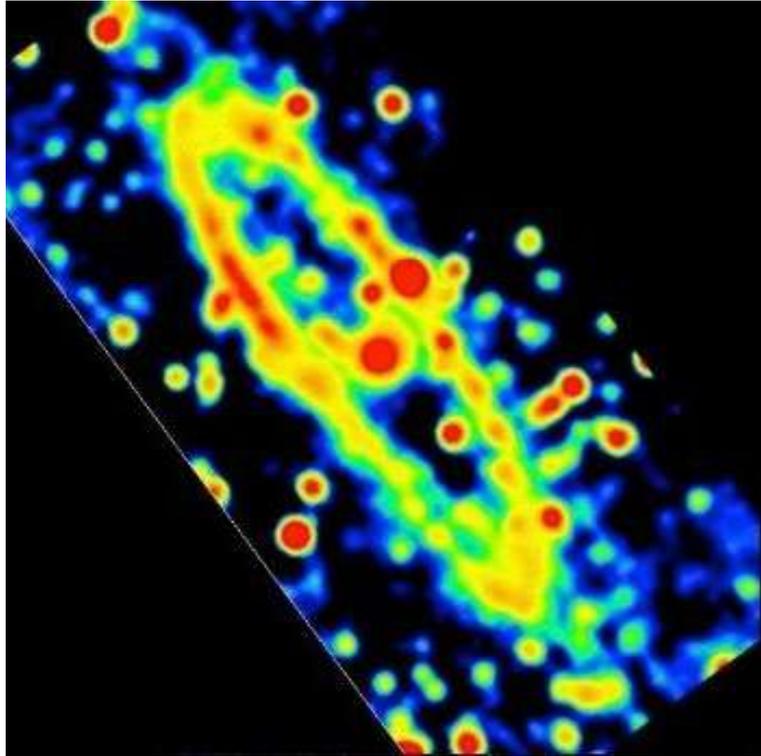
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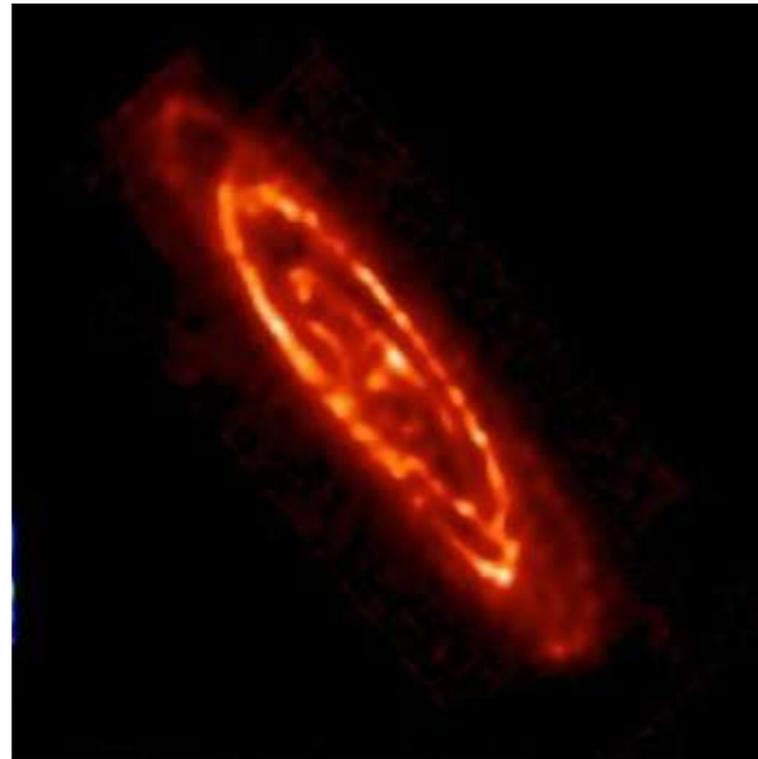
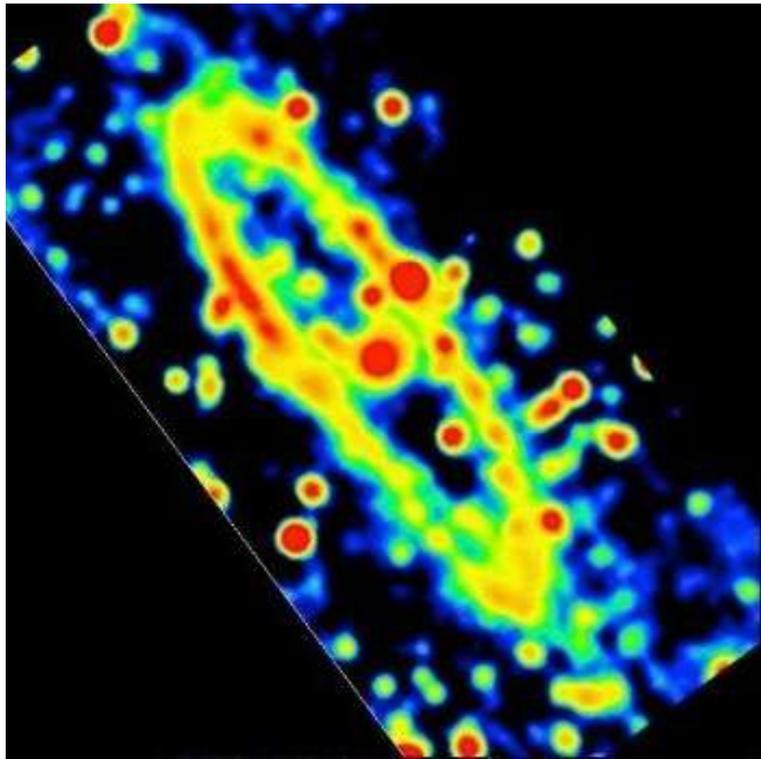
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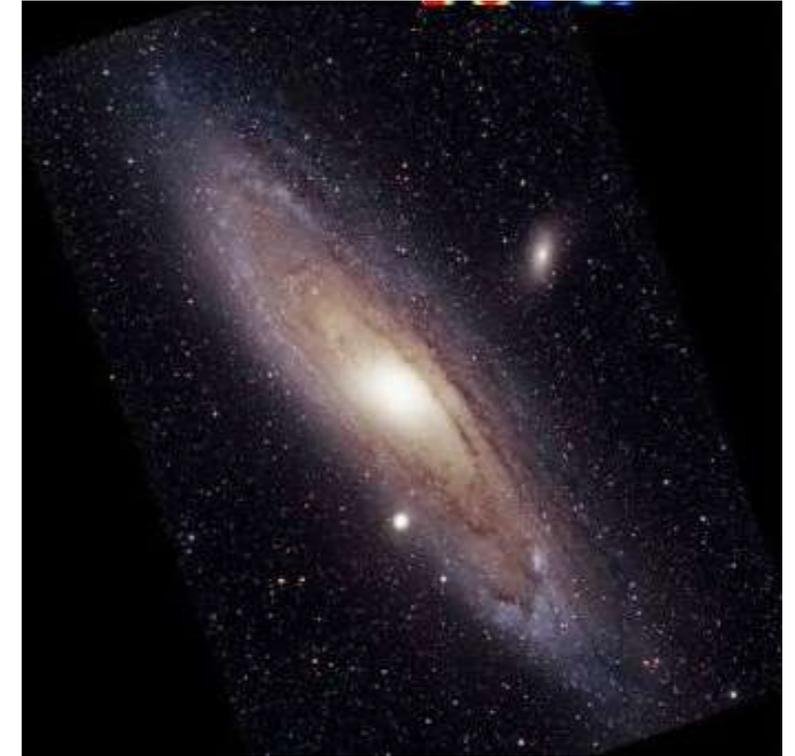
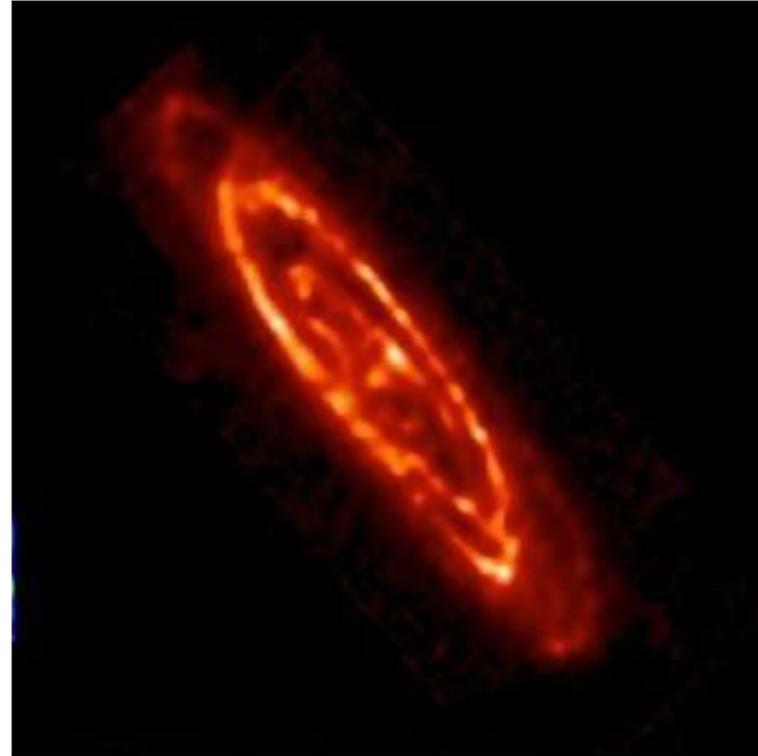
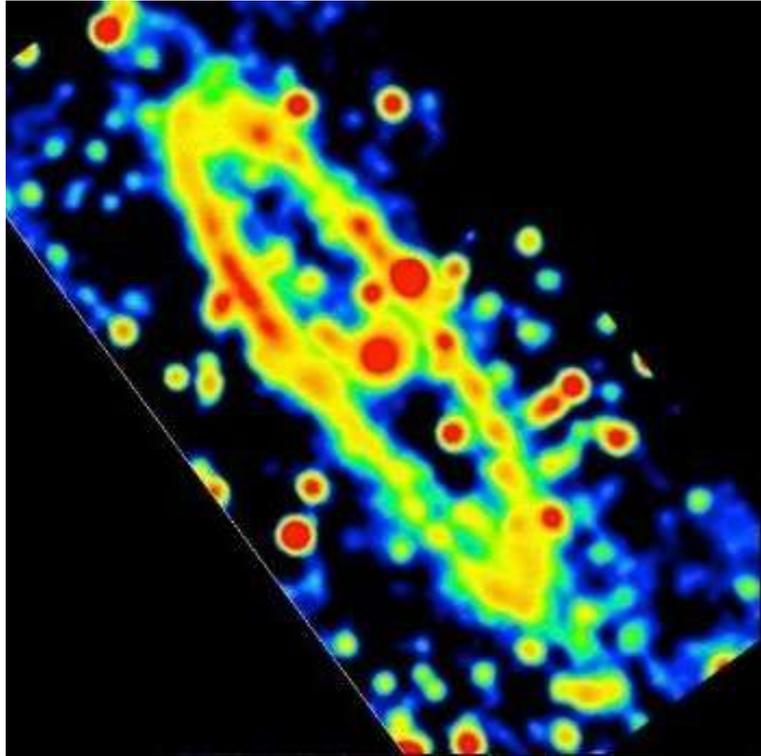
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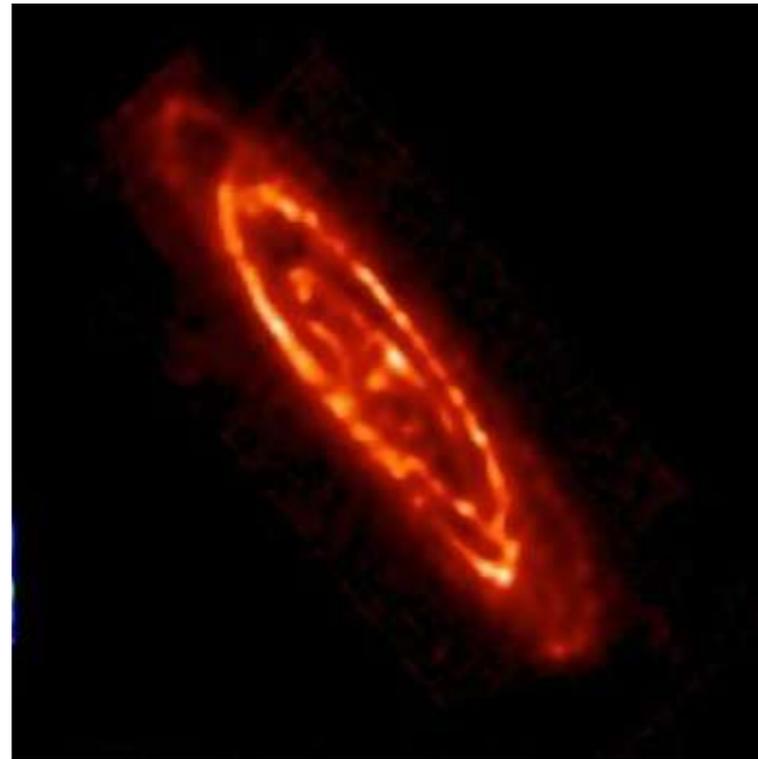
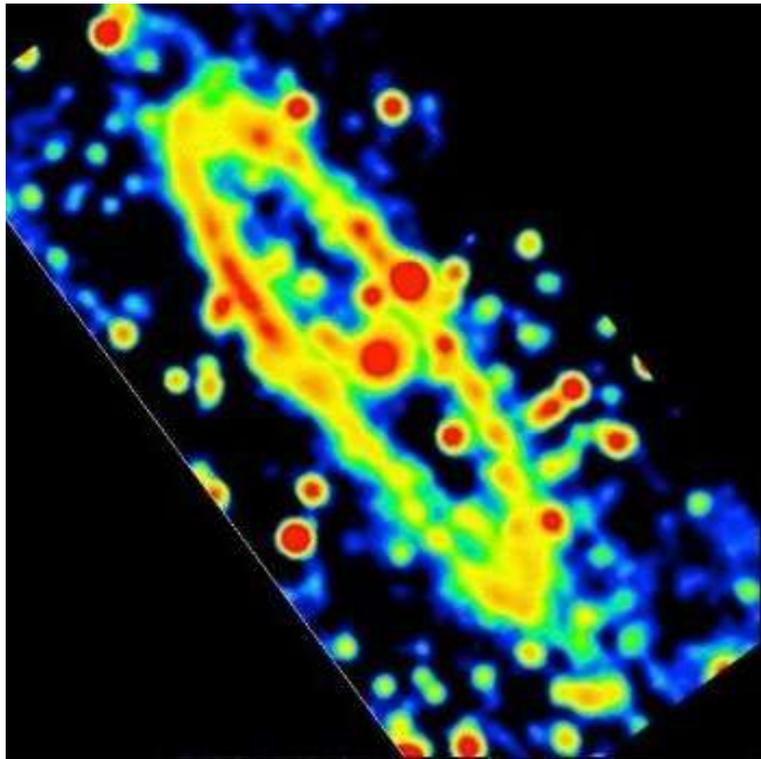
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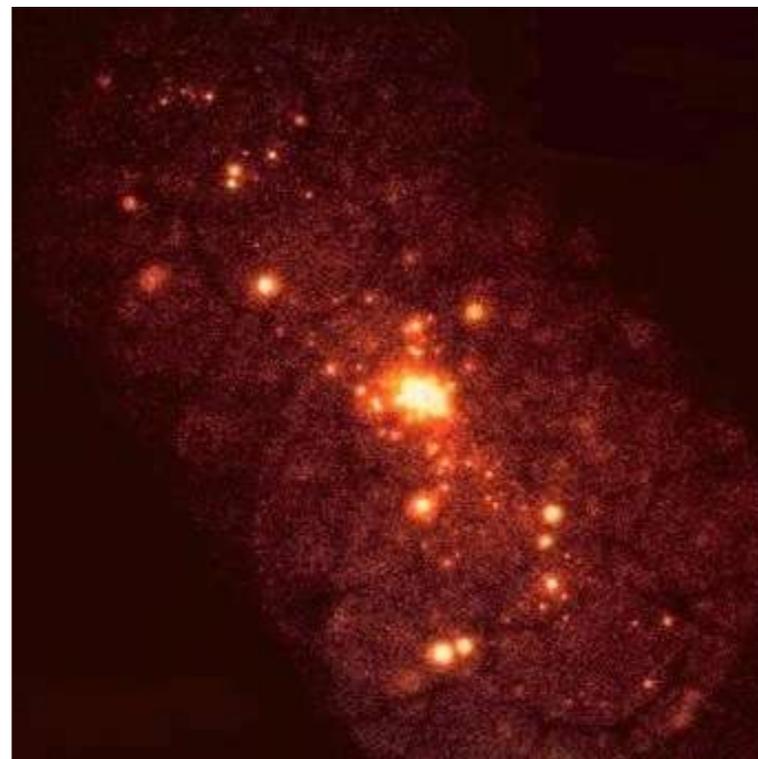
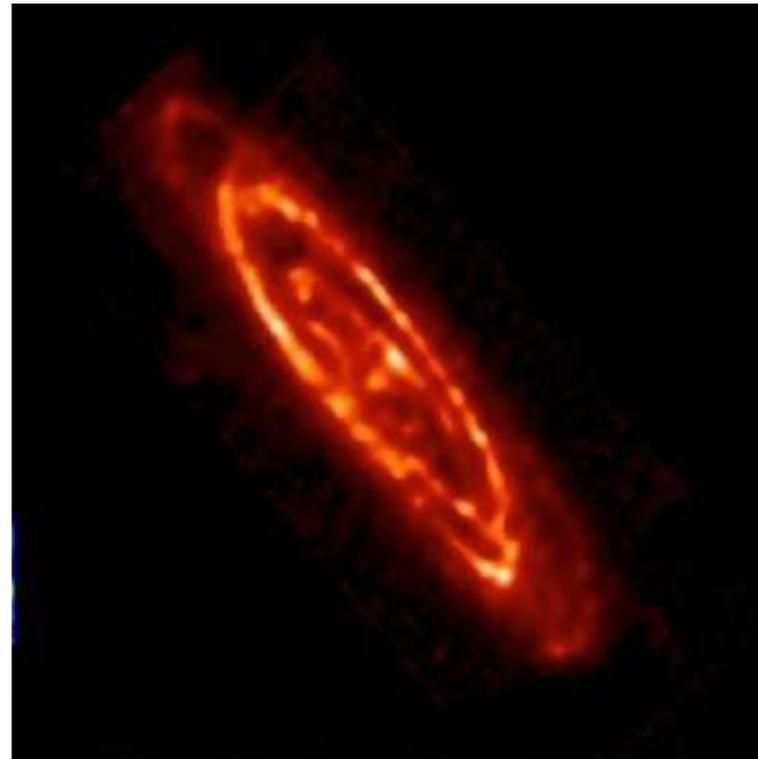
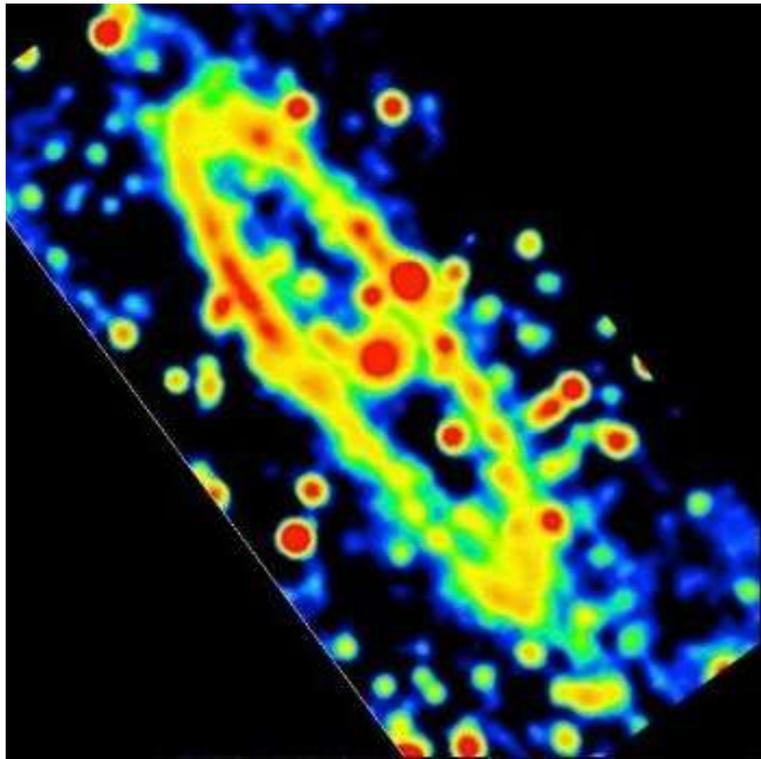
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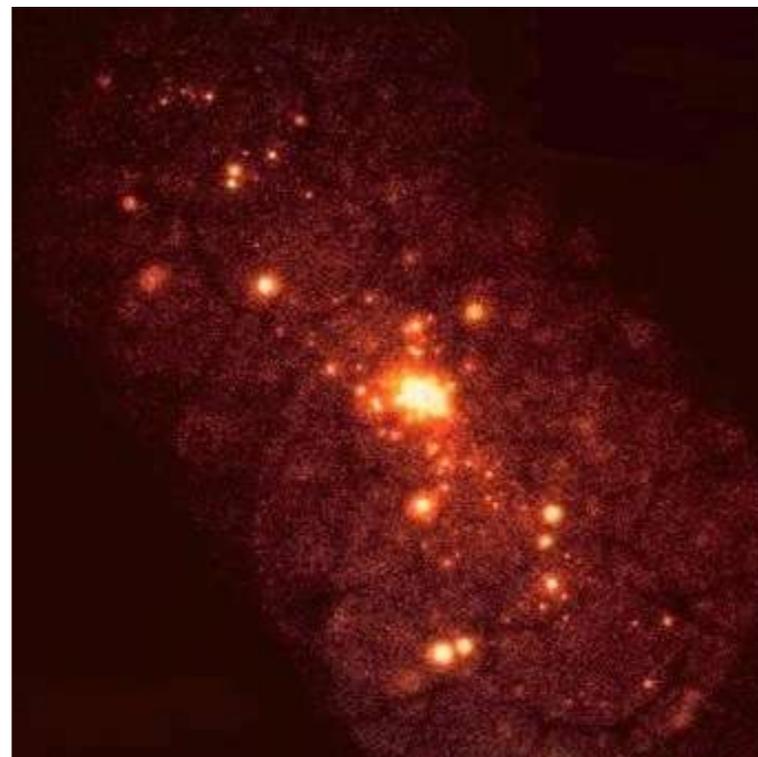
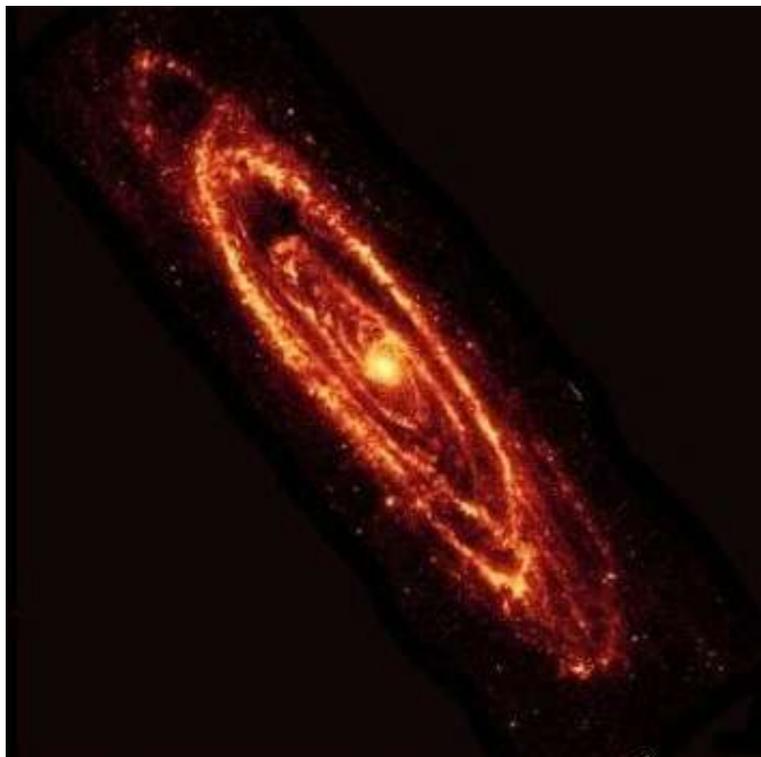
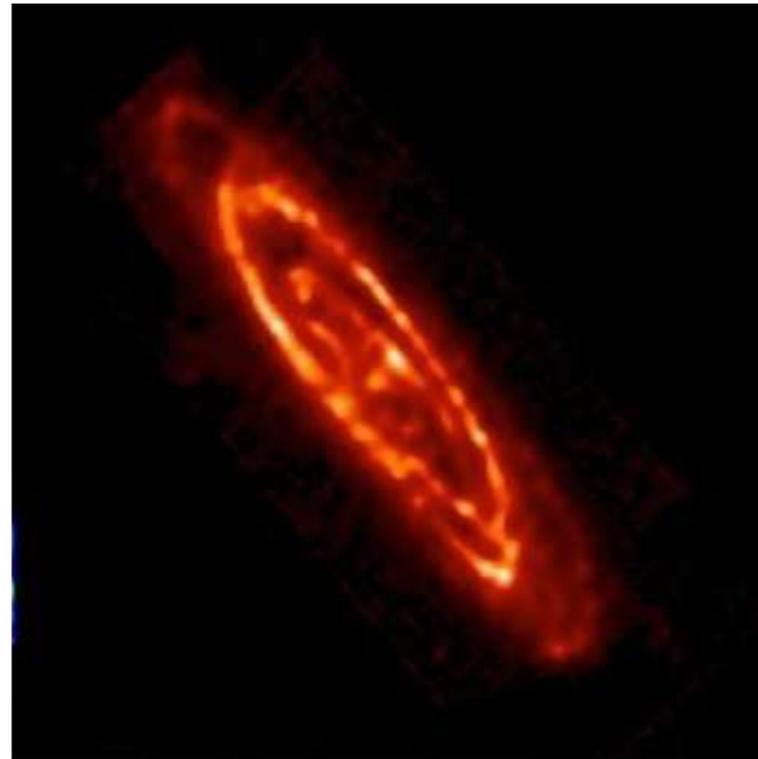
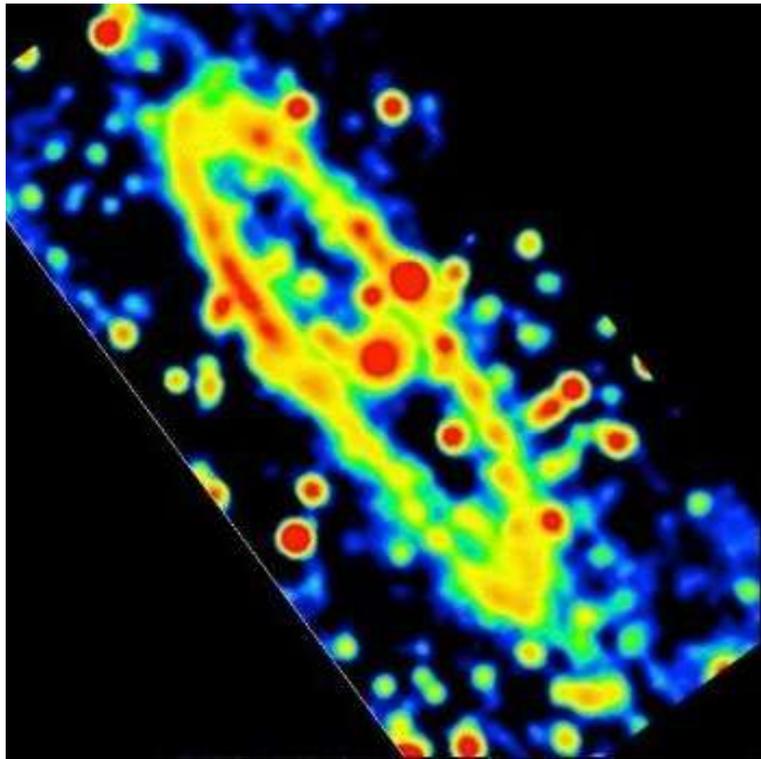
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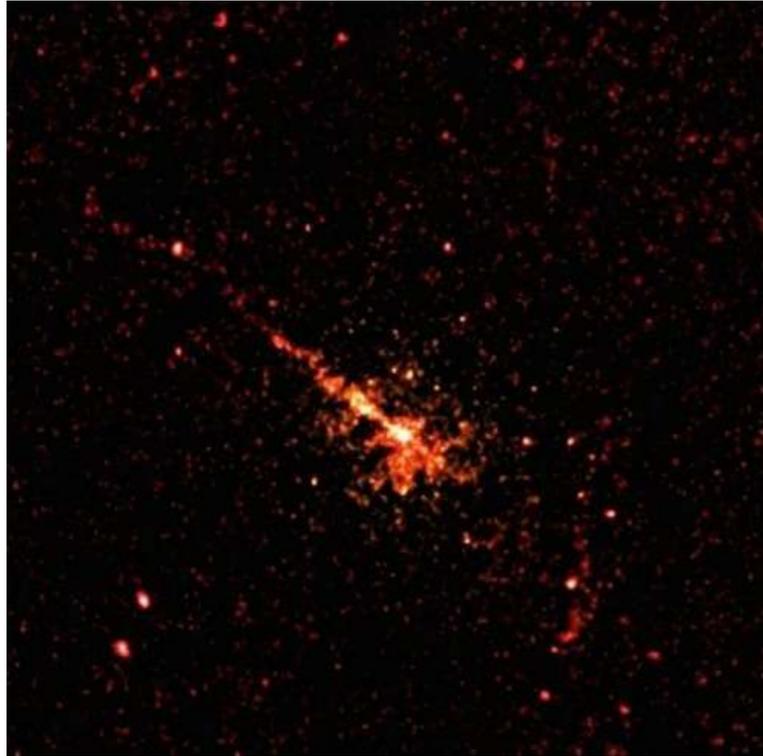
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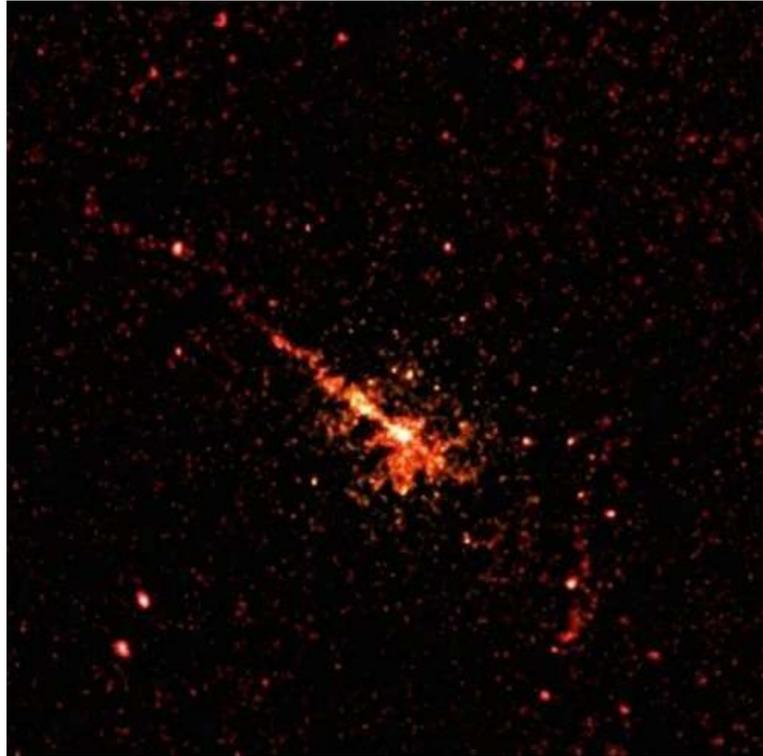
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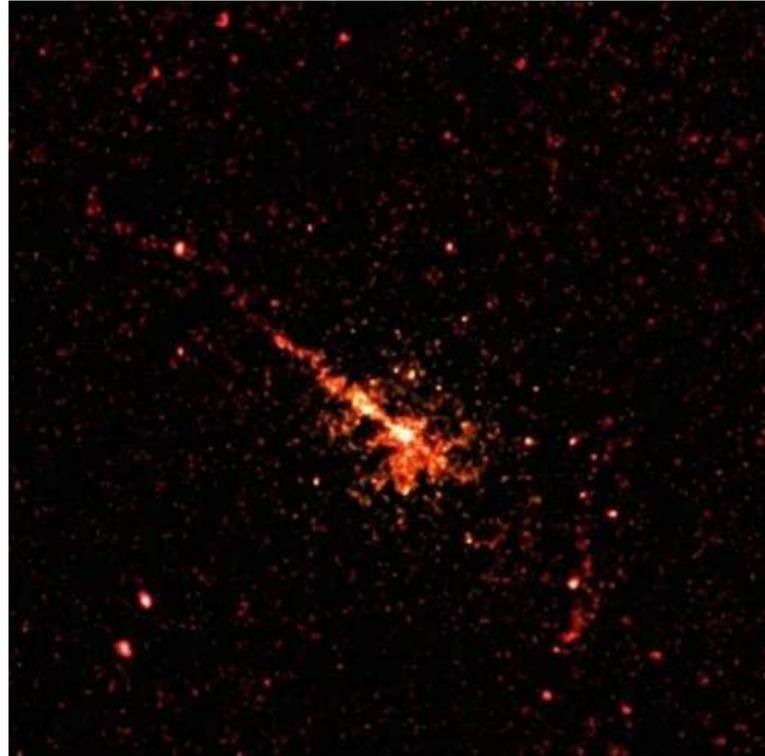
Galassia spirale



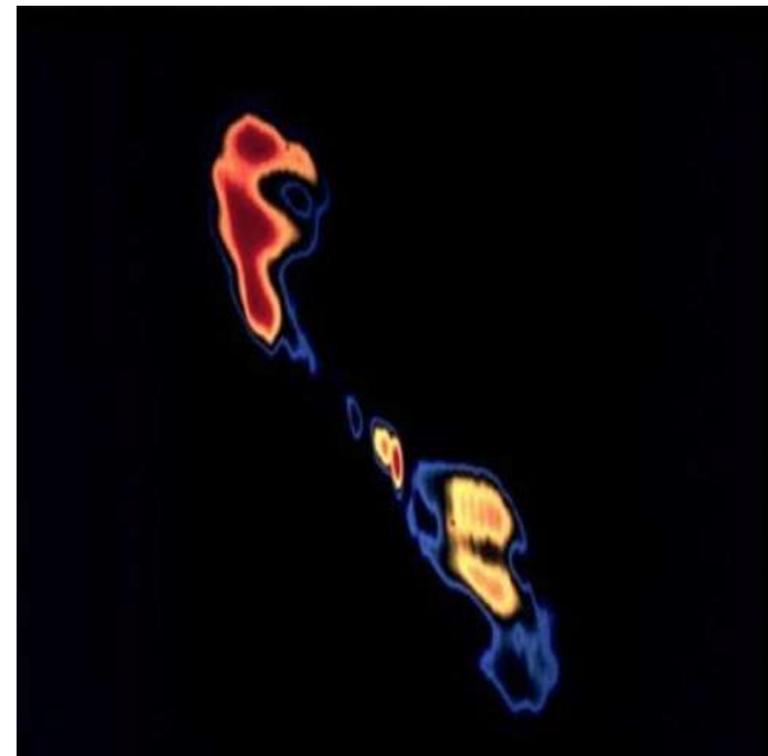
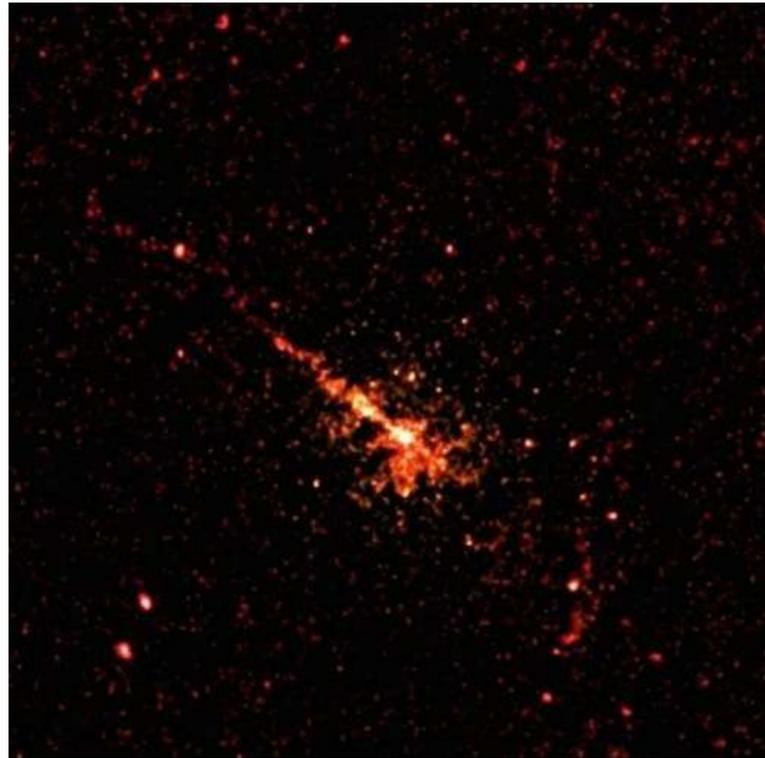
Galassia spirale



Galassia spirale

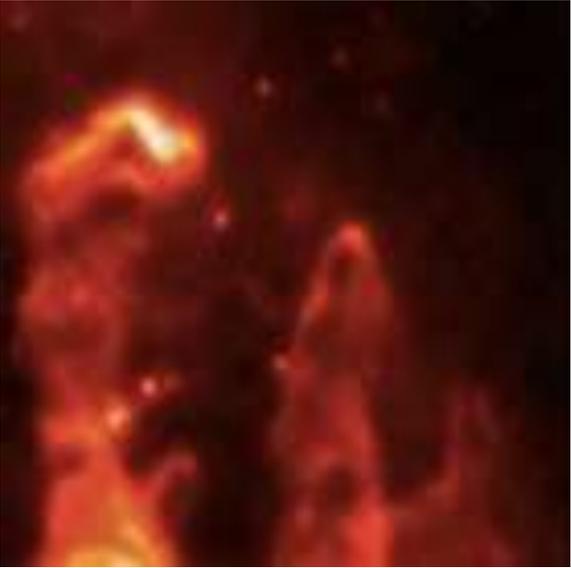


Galassia spirale

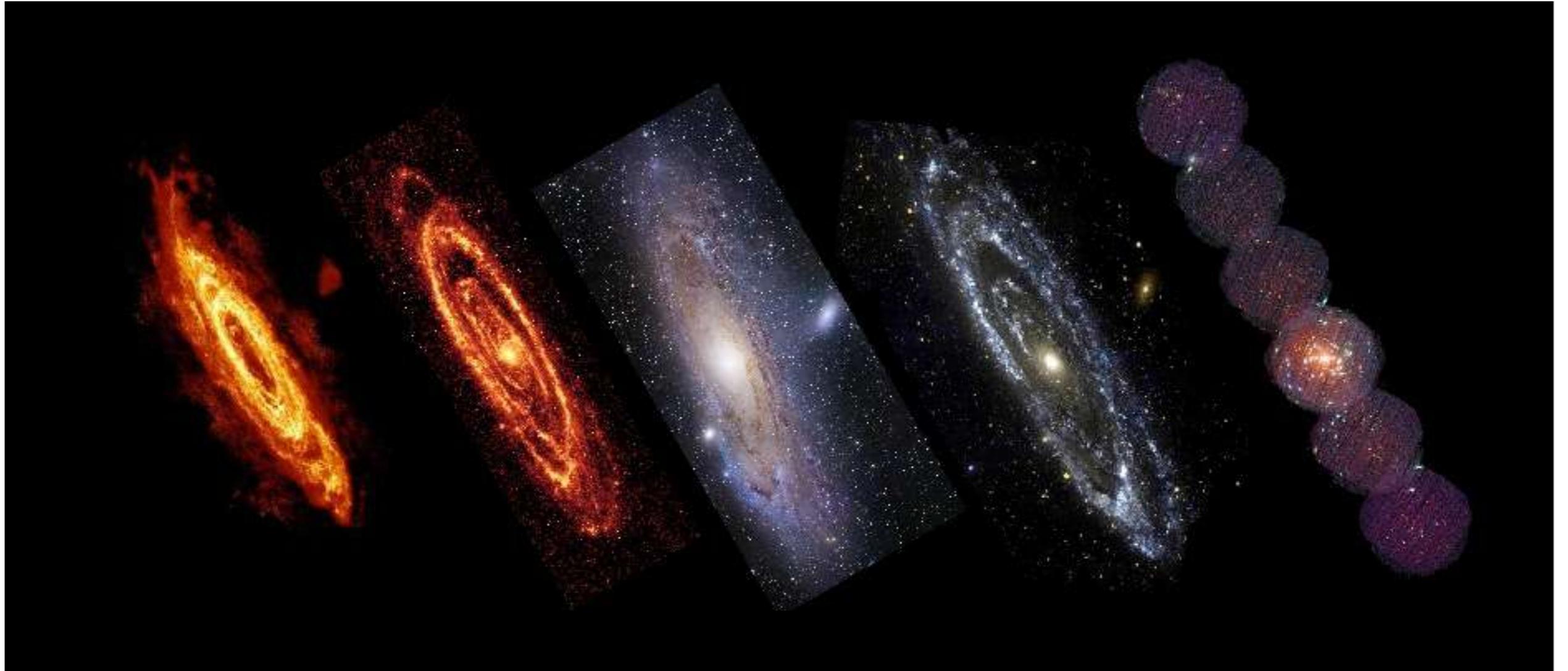


Nebulosa testa di cavallo

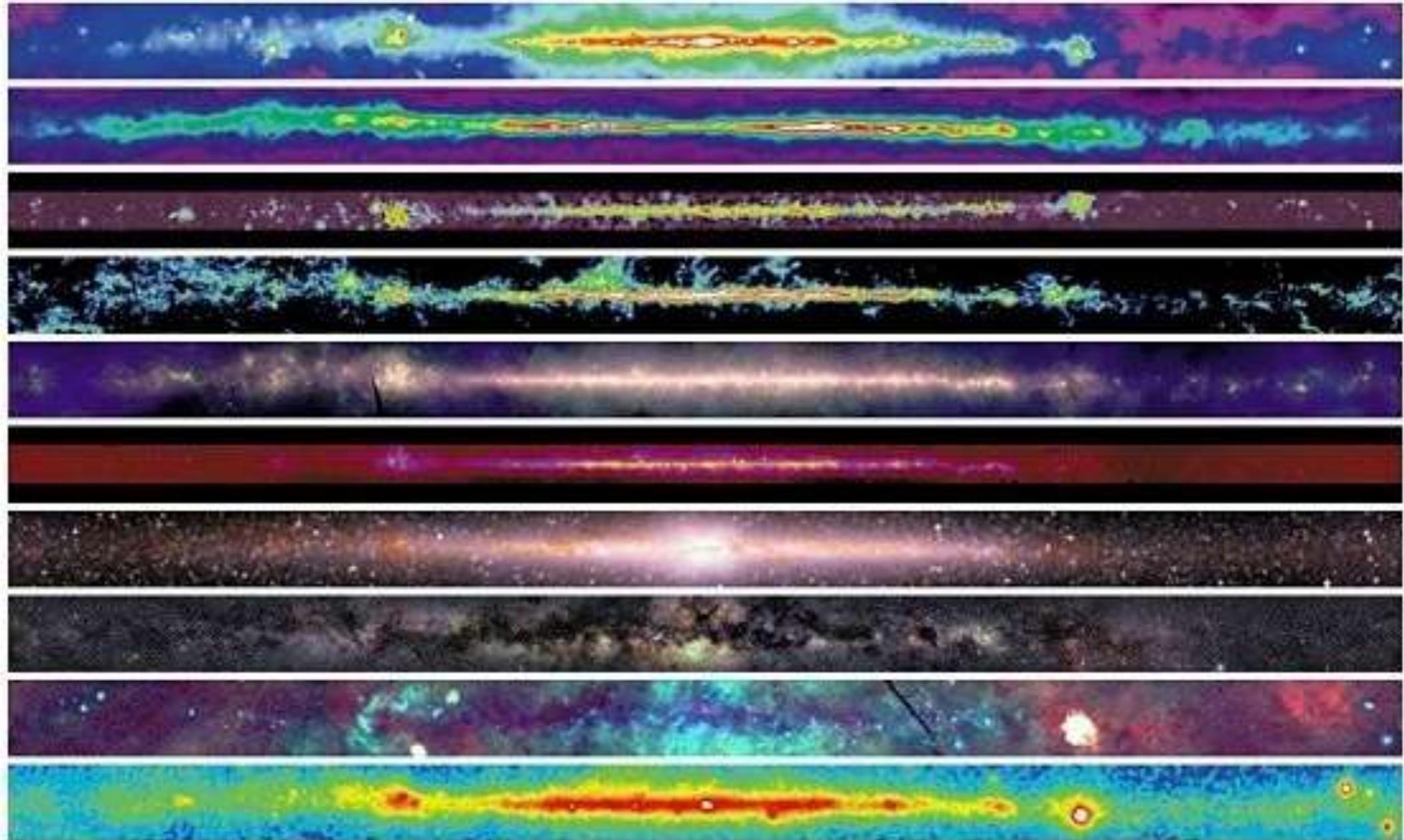
I pilastri della creazione



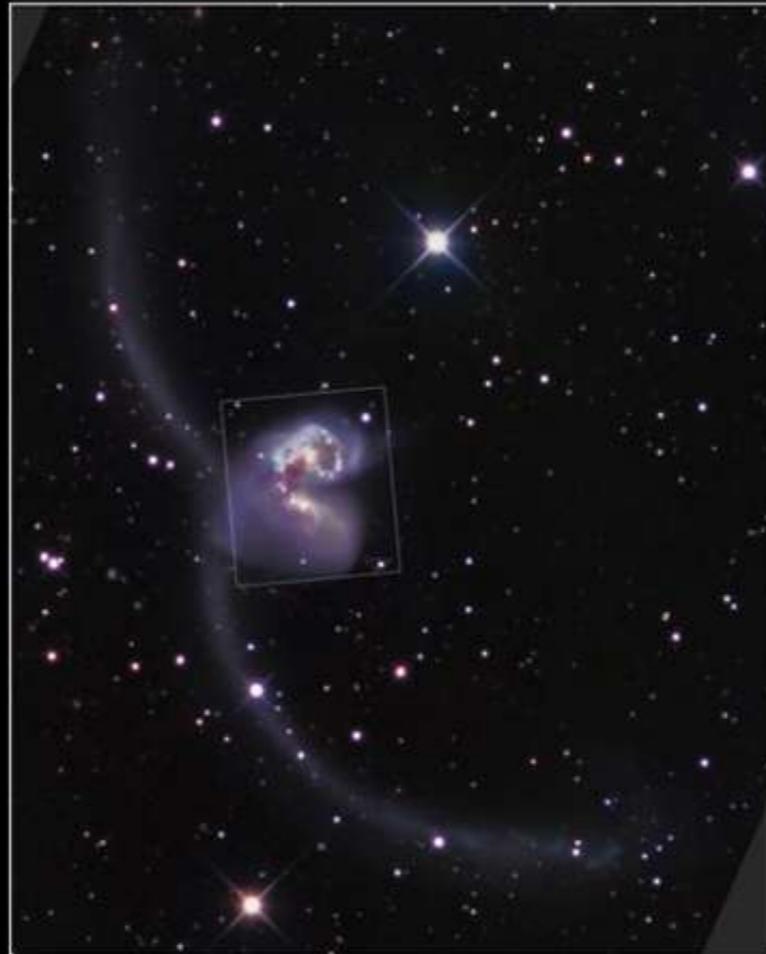
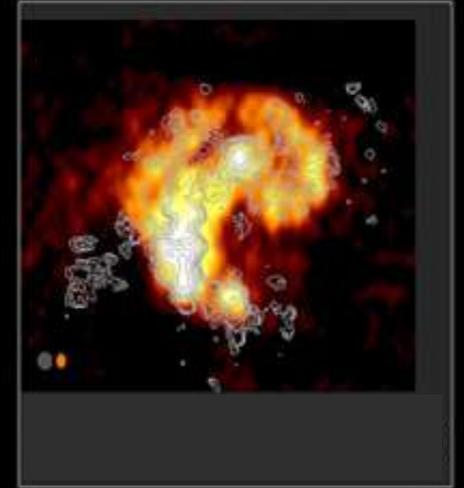
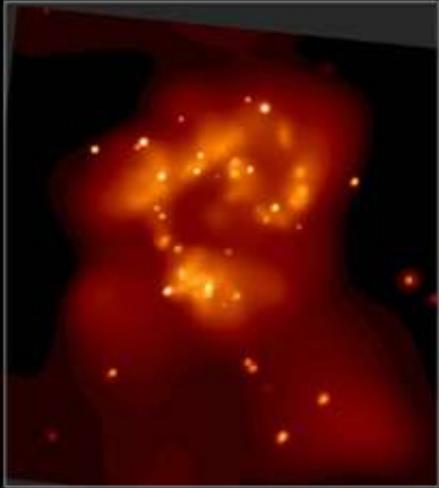
Galassia a spirale



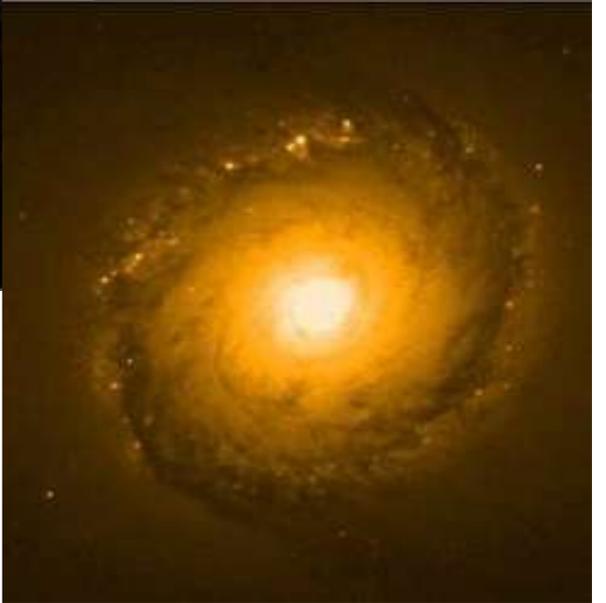
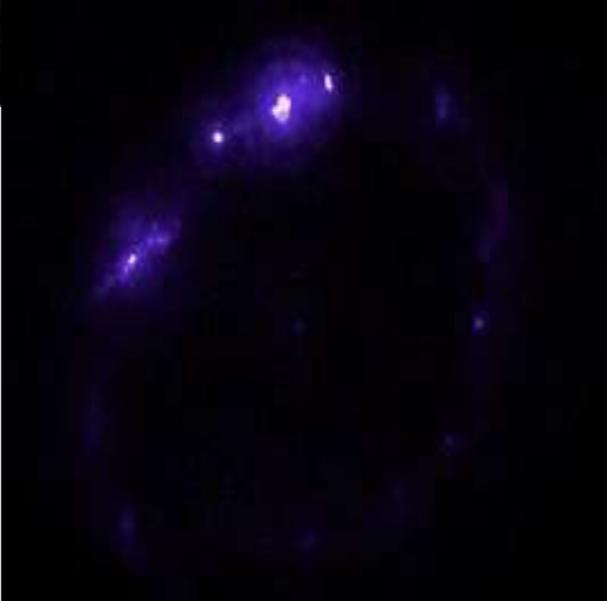
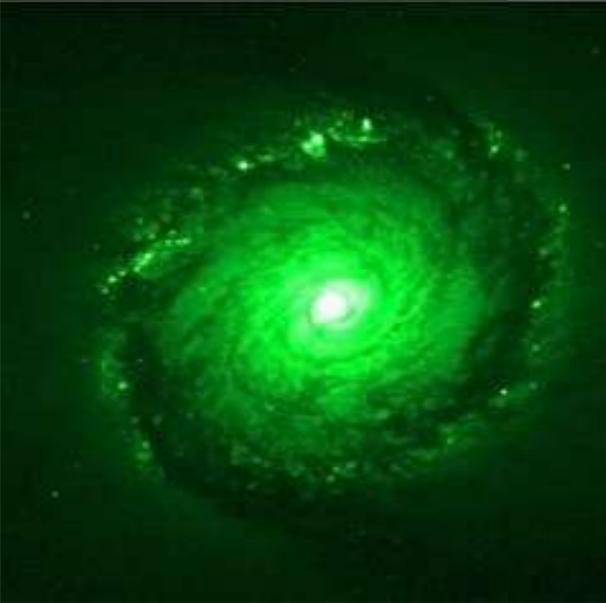
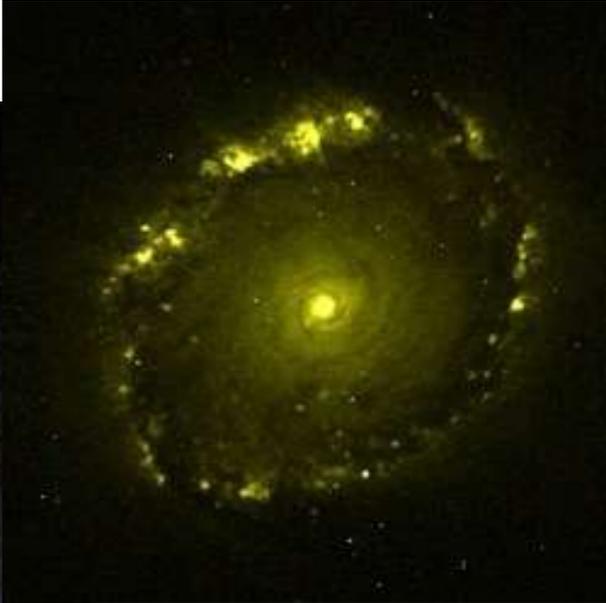
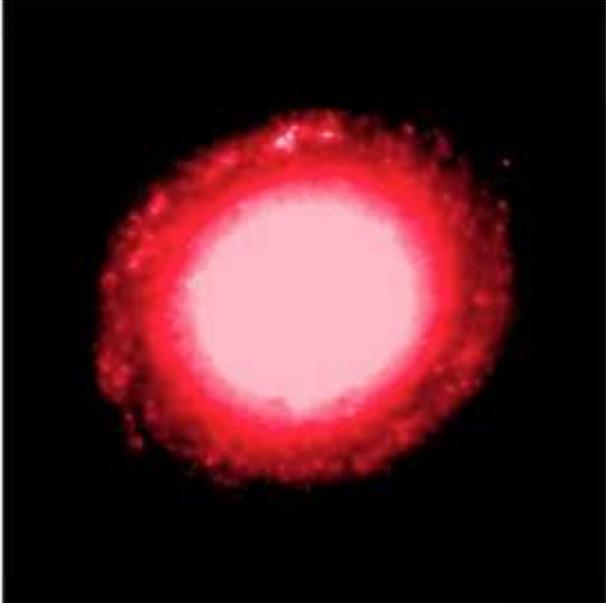
Sezione della Via Lattea

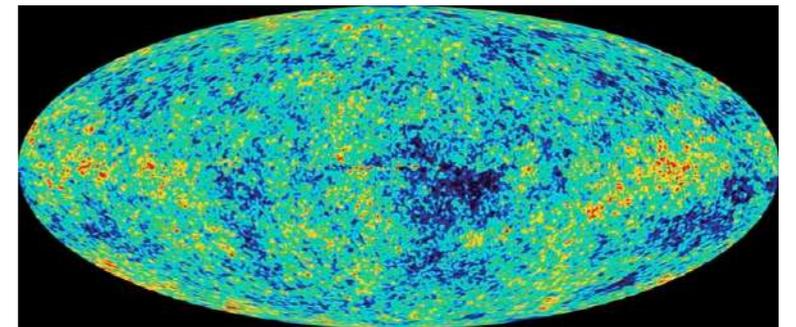
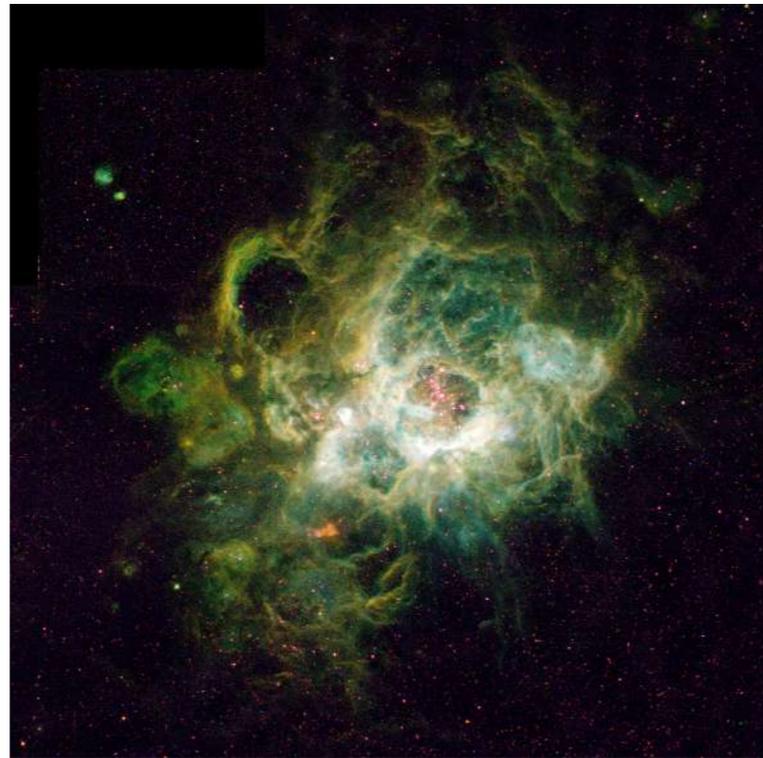
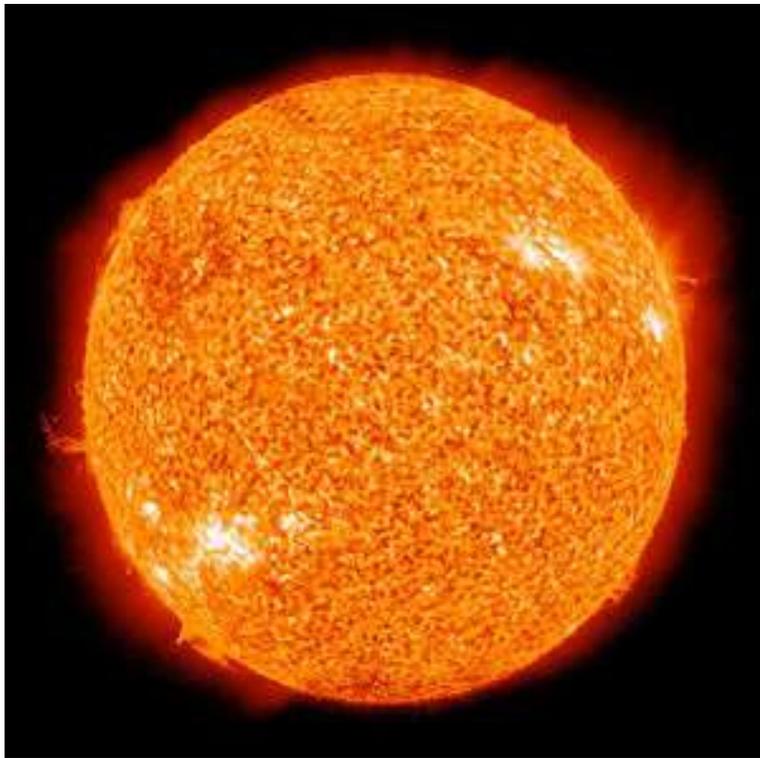


Galassie interagenti

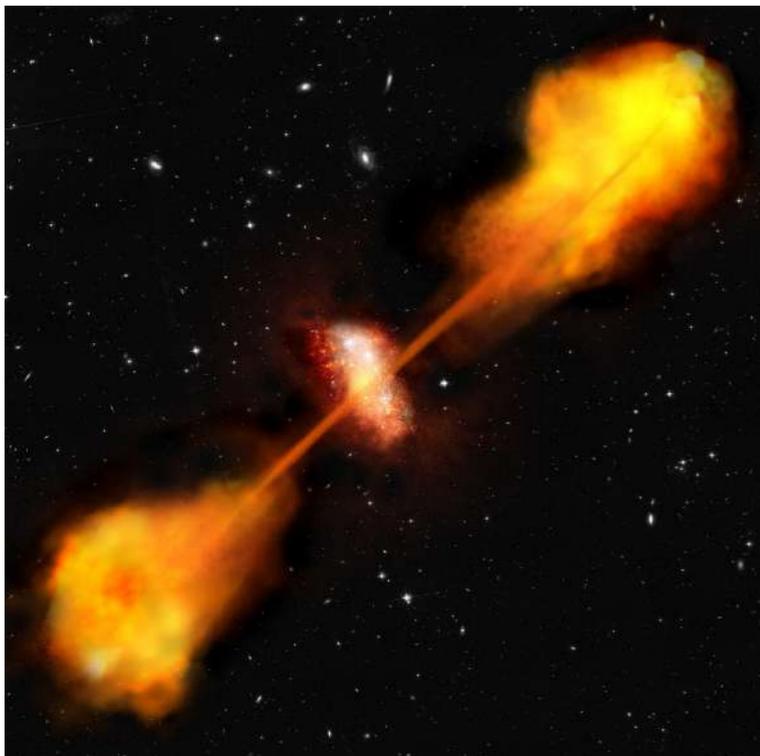


Galassia elicoidale





Cosa vediamo nell'Universo?



Come guardiamo l'Universo?

✧ Occhi

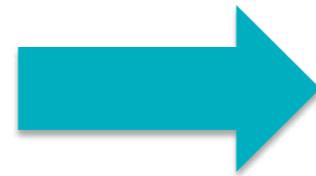
✧ Binocoli

✧ Telescopi

✧ Satelliti

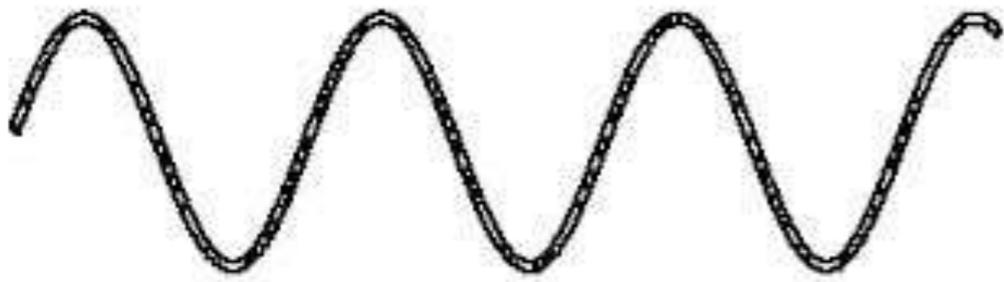
Come guardiamo l'Universo?

- ✧ Occhi
- ✧ Binocoli
- ✧ Telescopi
- ✧ Satelliti

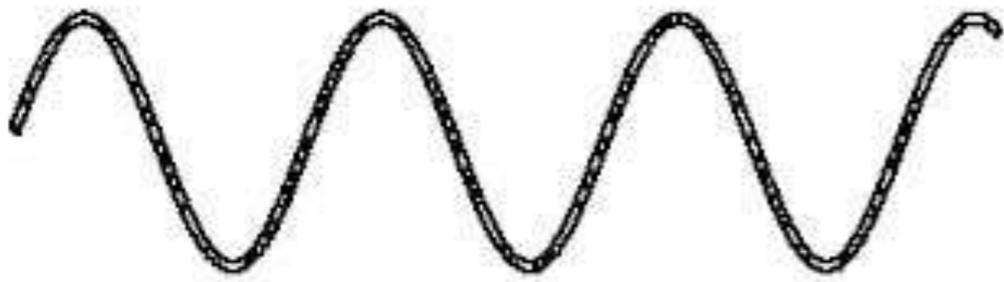


LUCE!

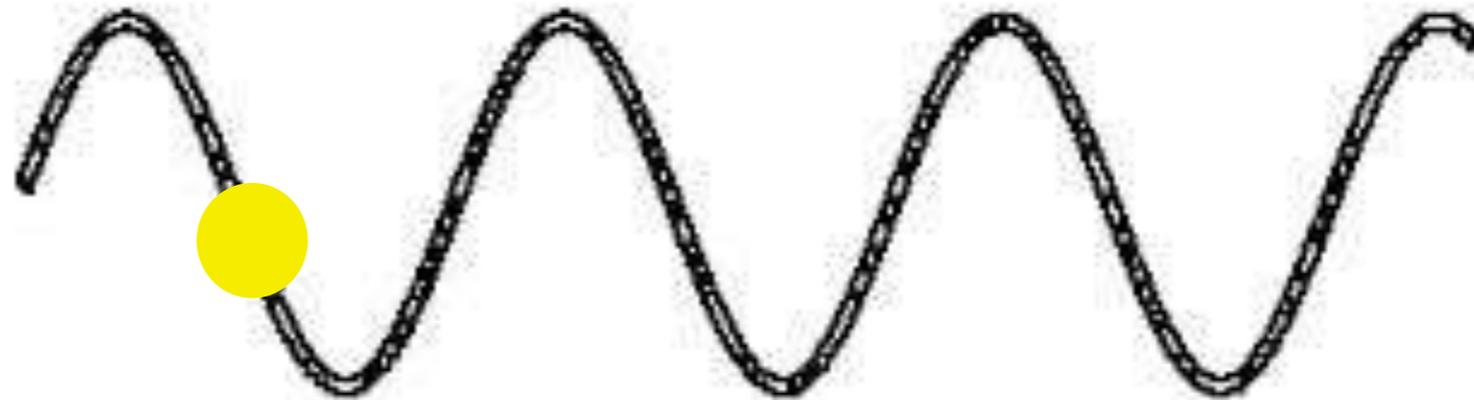
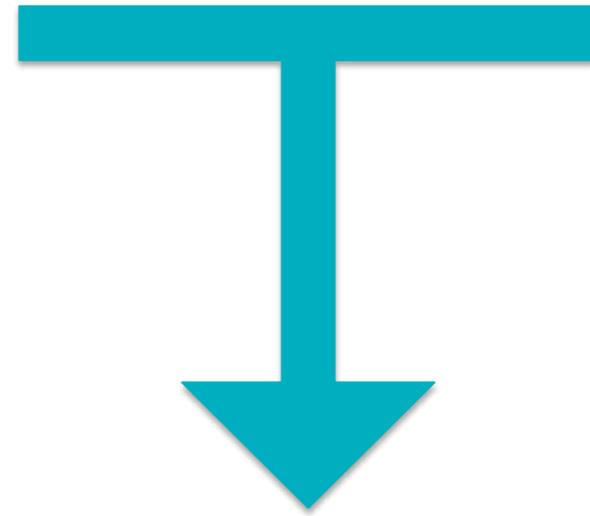
Ma cosa è la luce?



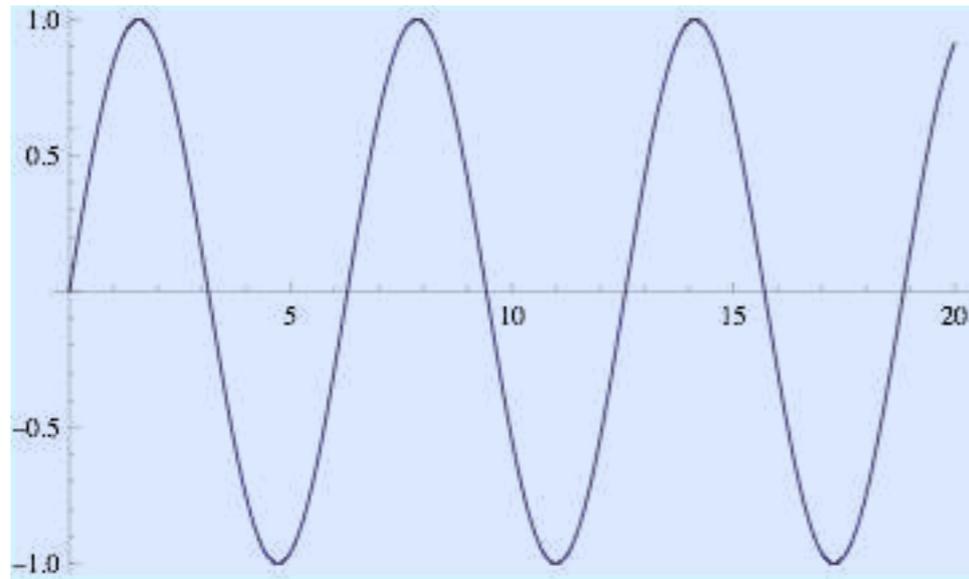
Ma cosa è la luce?



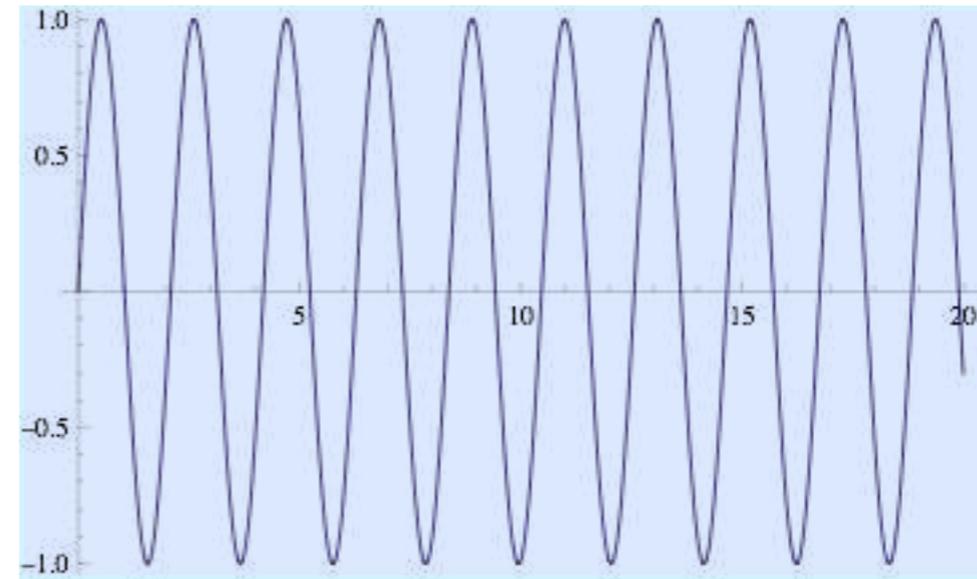
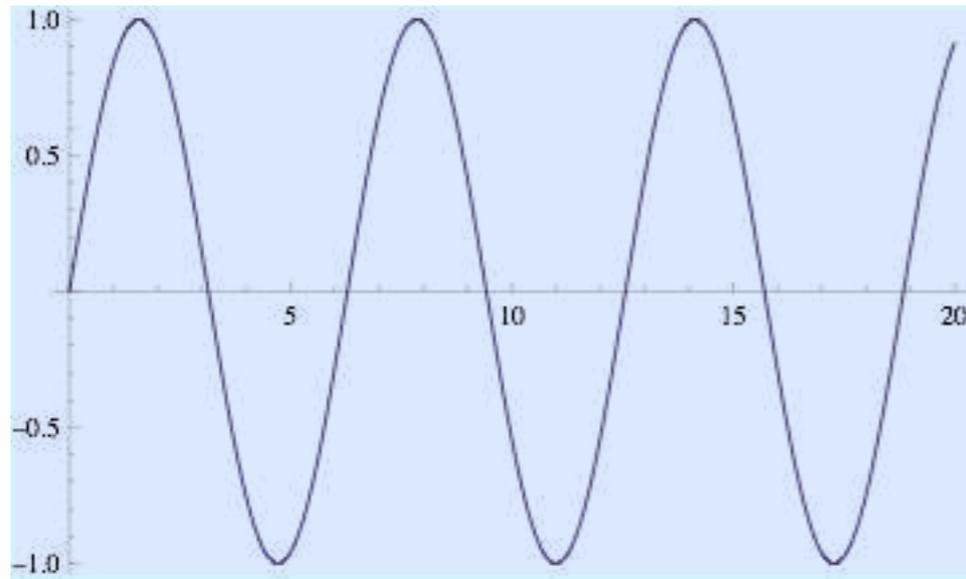
Ma cosa è la luce?



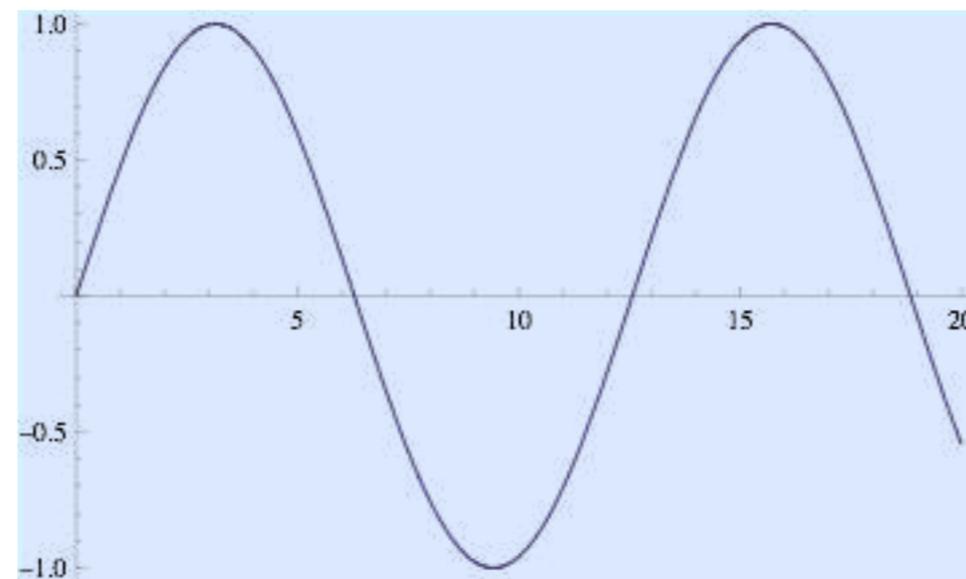
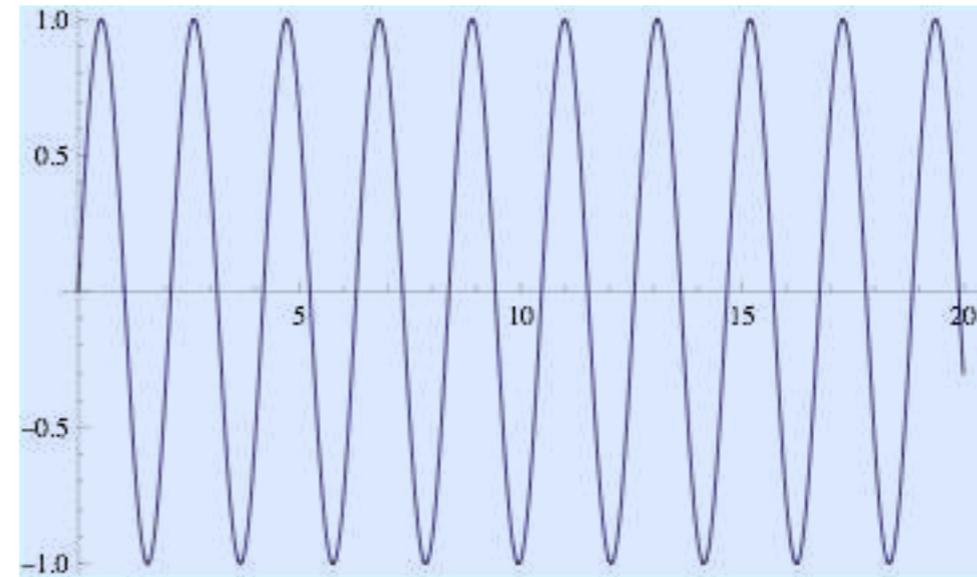
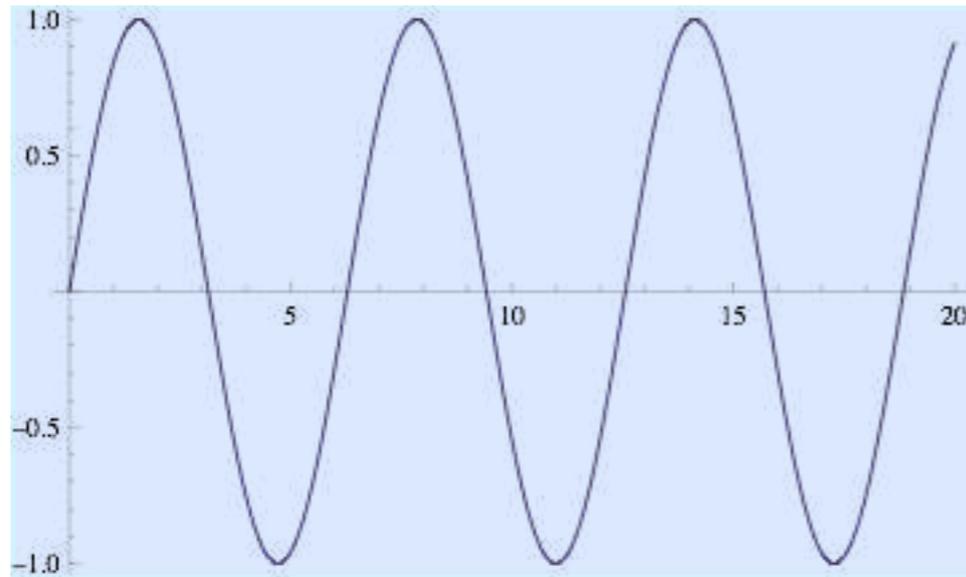
Ma le onde di luce sono tutte uguali?



Ma le onde di luce sono tutte uguali?

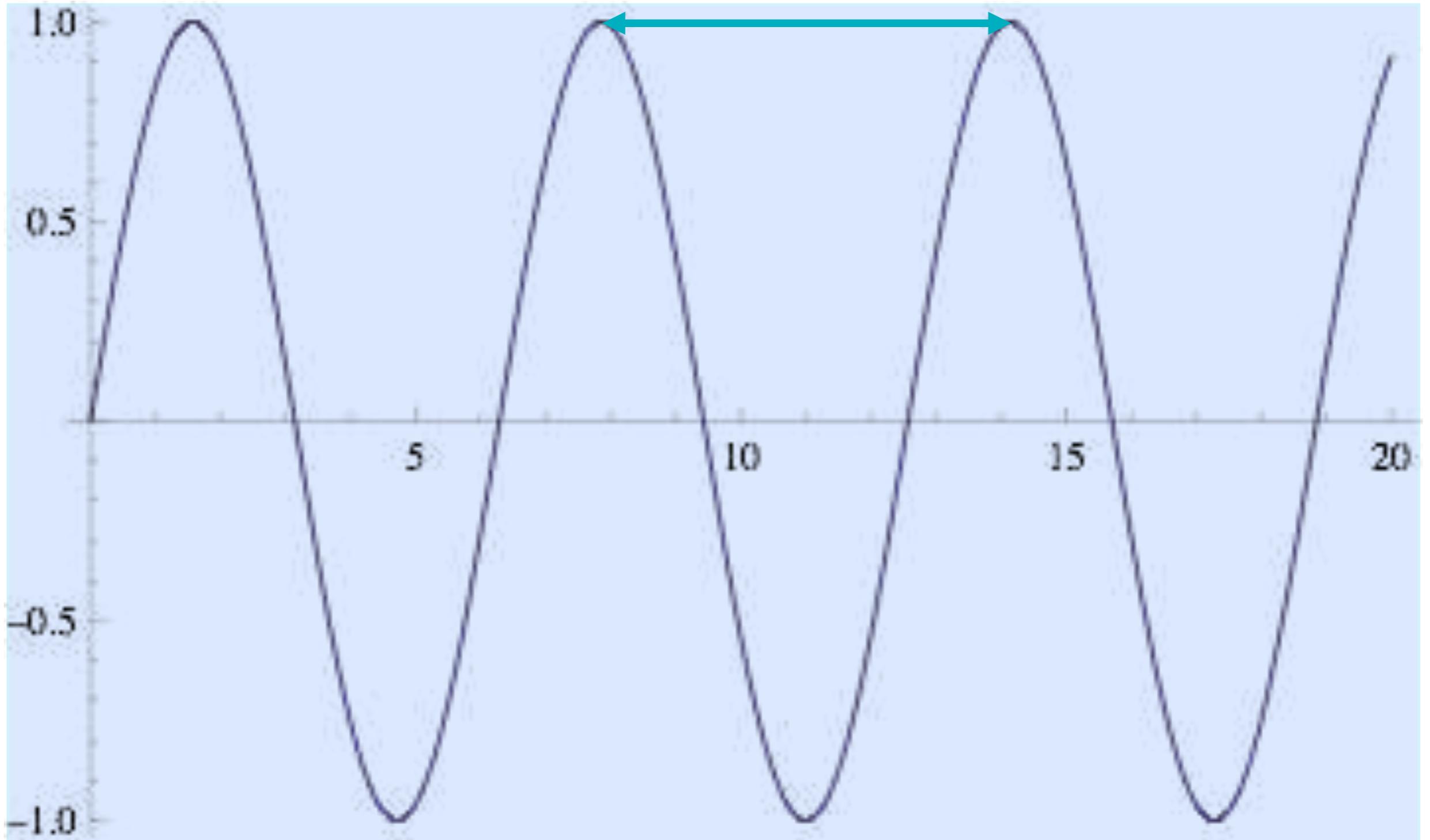


Ma le onde di luce sono tutte uguali?

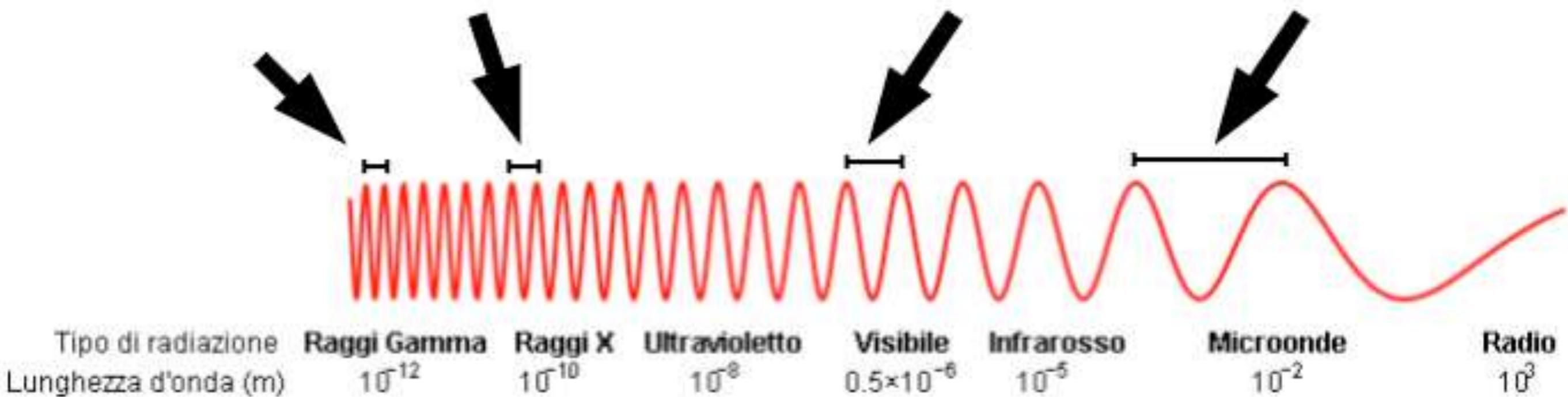


Ma le onde di luce sono tutte uguali?

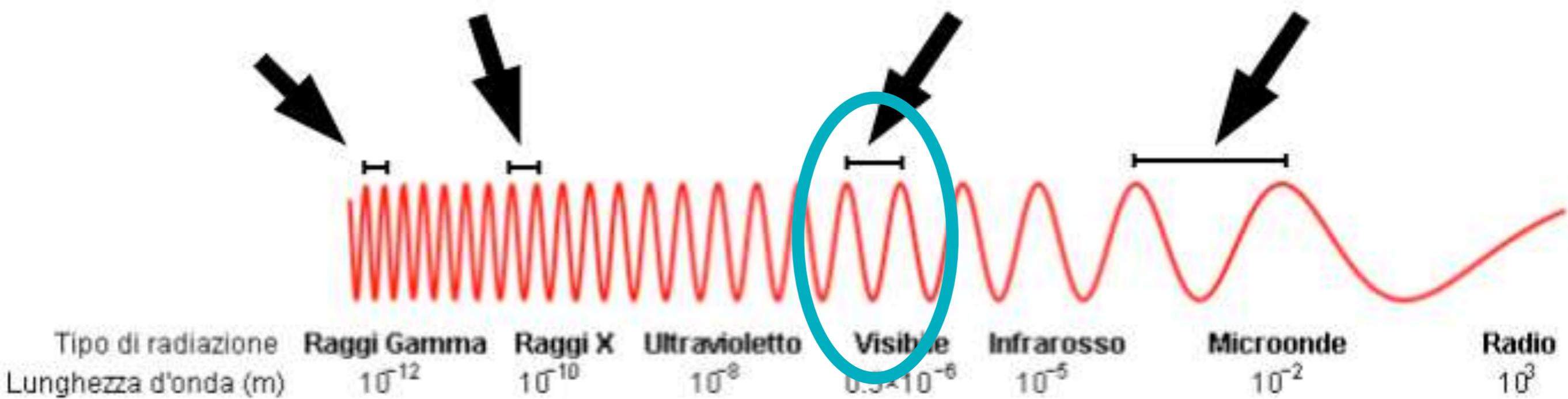
lunghezza d'onda

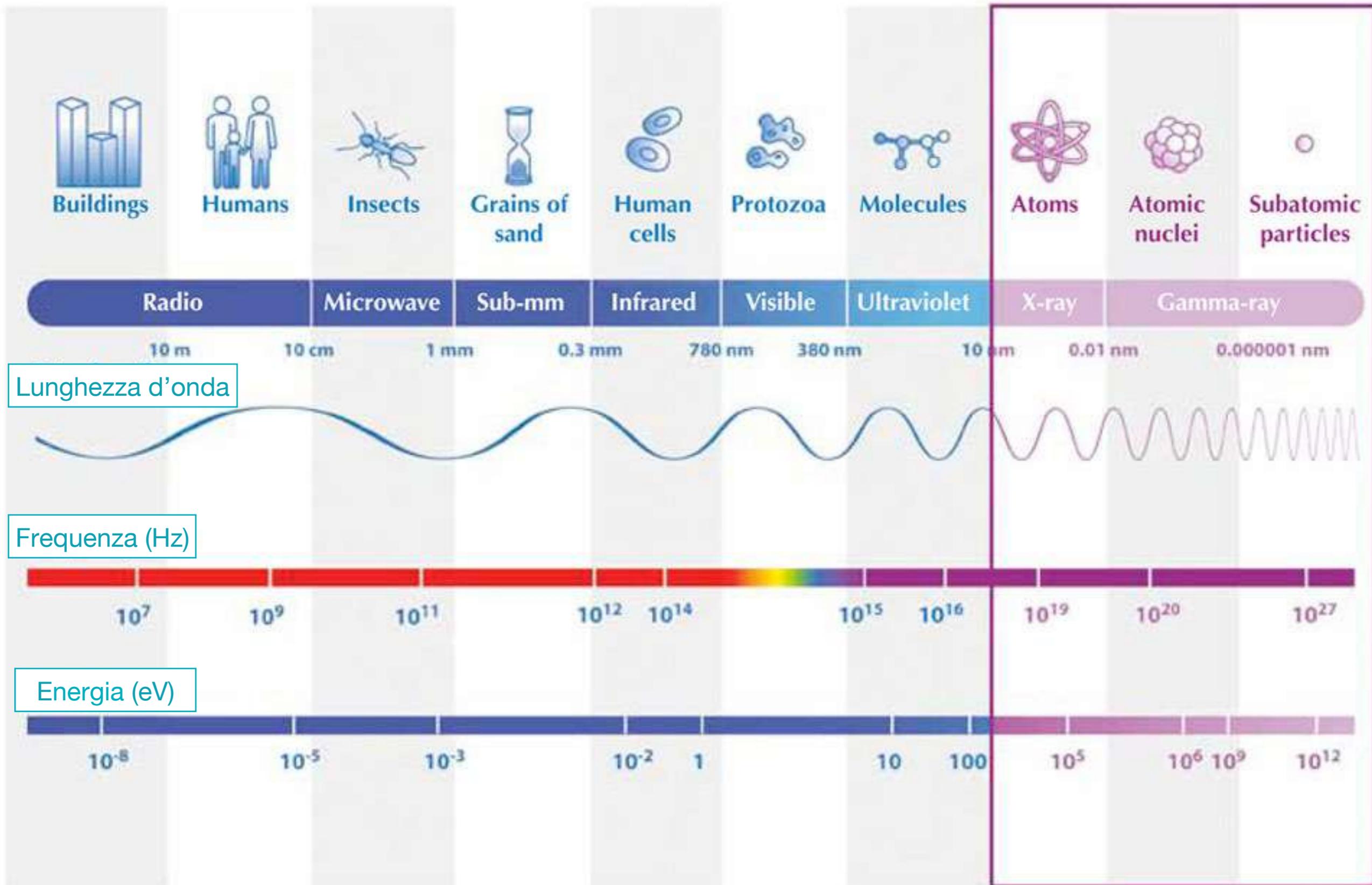


Cosa cambia a diverse lunghezze d'onda?



Cosa cambia a diverse lunghezze d'onda?





Cosa vediamo nell'universo a diverse lunghezze d'onda?

RADIO:

ULTRAVIOLETTO:

INFRAROSSO:

RAGGI X E RAGGI GAMMA:

Cosa vediamo nell'universo a diverse lunghezze d'onda?

RADIO:

- ✧ centro della Via Lattea
- ✧ nuclei delle galassie
- ✧ radiazione fossile

ULTRAVIOLETTO:

INFRAROSSO:

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- ✧ centro della Via Lattea
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- ✧ radiazione fossile

ULTRAVIOLETTO:

- ✧ stelle

INFRAROSSO:

RAGGI X E RAGGI GAMMA:

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- ✧ radiazione fossile

ULTRAVIOLETTO:

- ✧ stelle

INFRAROSSO:

- ✧ oltre le nubi di polvere
- ✧ protostelle

RAGGI X E RAGGI GAMMA:

Cosa vediamo nell'universo a diverse lunghezze d'onda?

RADIO:

- ✧ centro della Via Lattea
- ✧ nuclei delle galassie
- ✧ radiazione fossile

ULTRAVIOLETTO:

- ✧ stelle

INFRAROSSO:

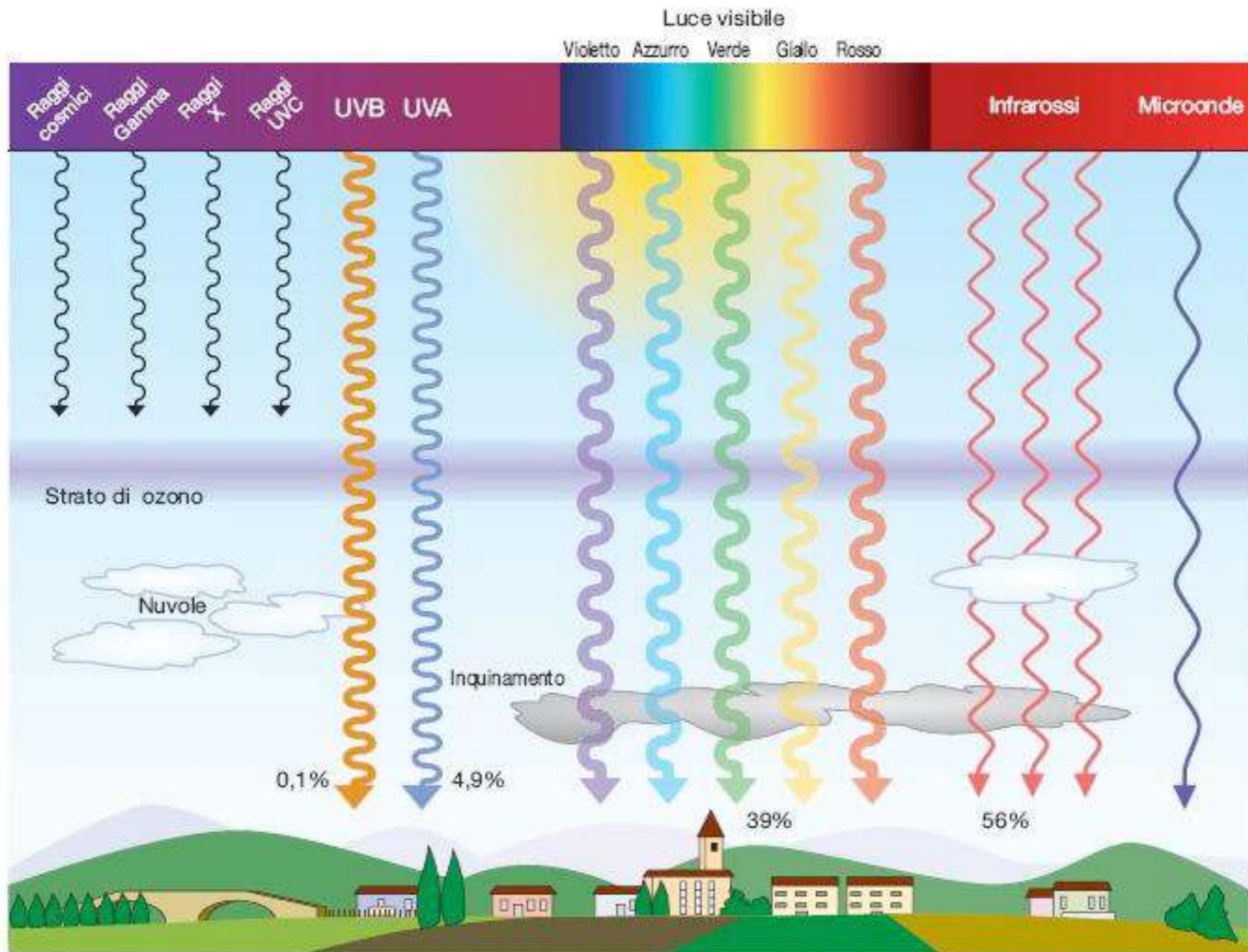
- ✧ oltre le nubi di polvere
- ✧ protostelle

RAGGI X E RAGGI GAMMA:

- ✧ lampi a raggi Gamma
- ✧ emissione da buchi neri al centro delle galassie

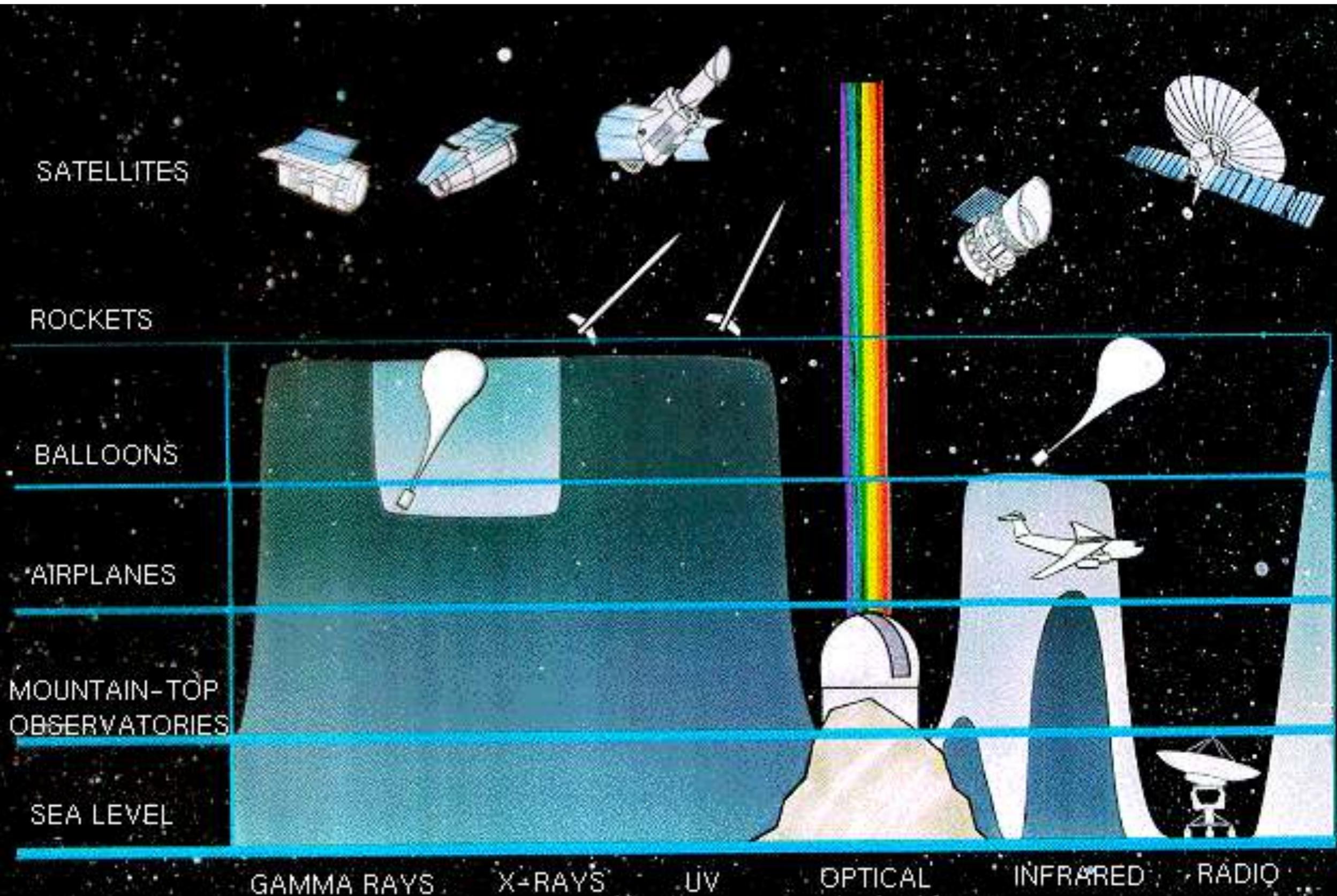
Possiamo vedere tutte le onde da terra?

Possiamo vedere tutte le onde da terra?

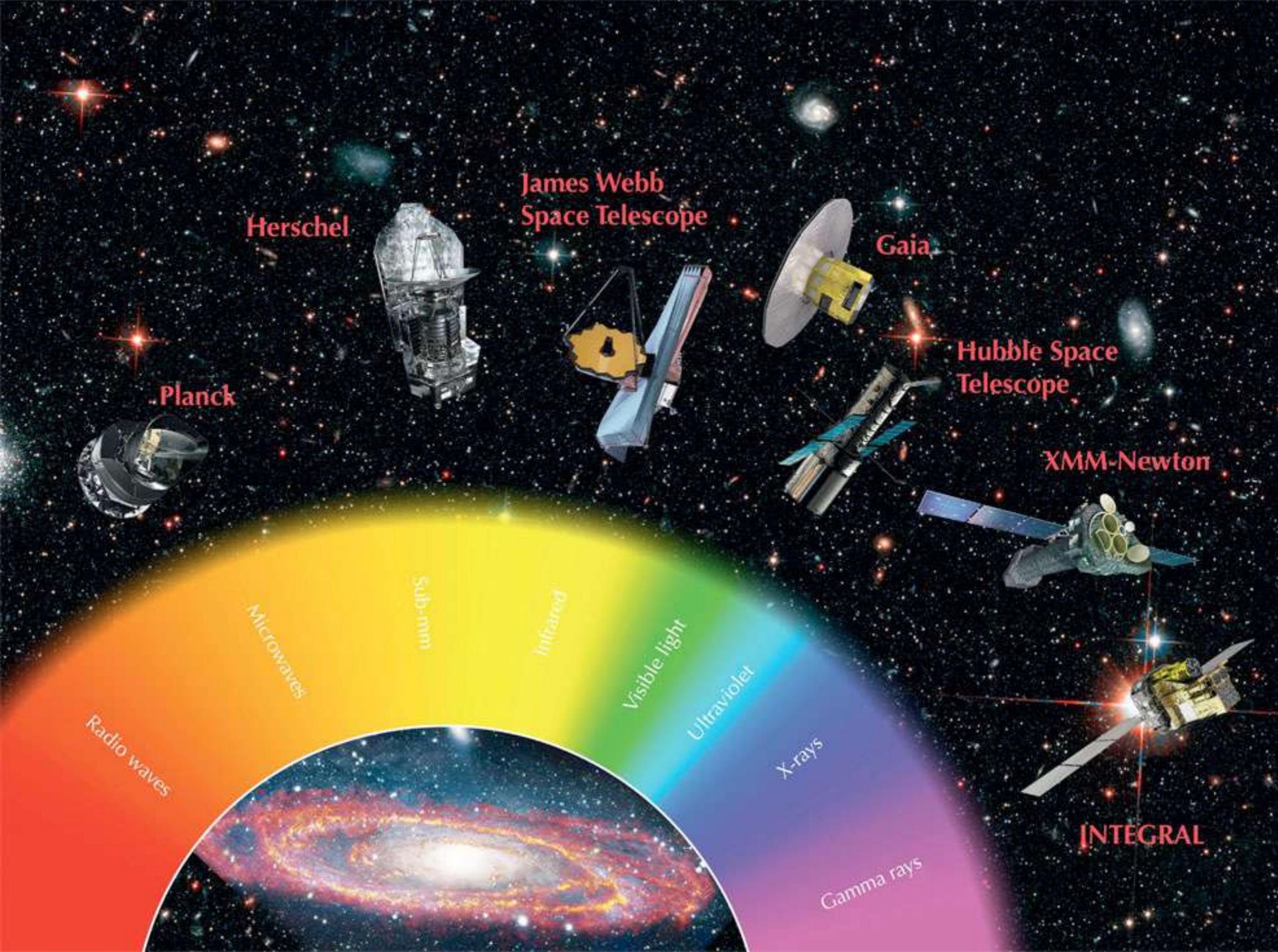


Rappresentazione delle radiazioni che raggiungono la superficie terrestre

Possiamo vedere tutte le onde da terra?







Herschel

James Webb
Space Telescope

Gaia

Hubble Space
Telescope

XMM-Newton

INTEGRAL

Planck

Microwaves

Sub-mm

Infrared

Visible light

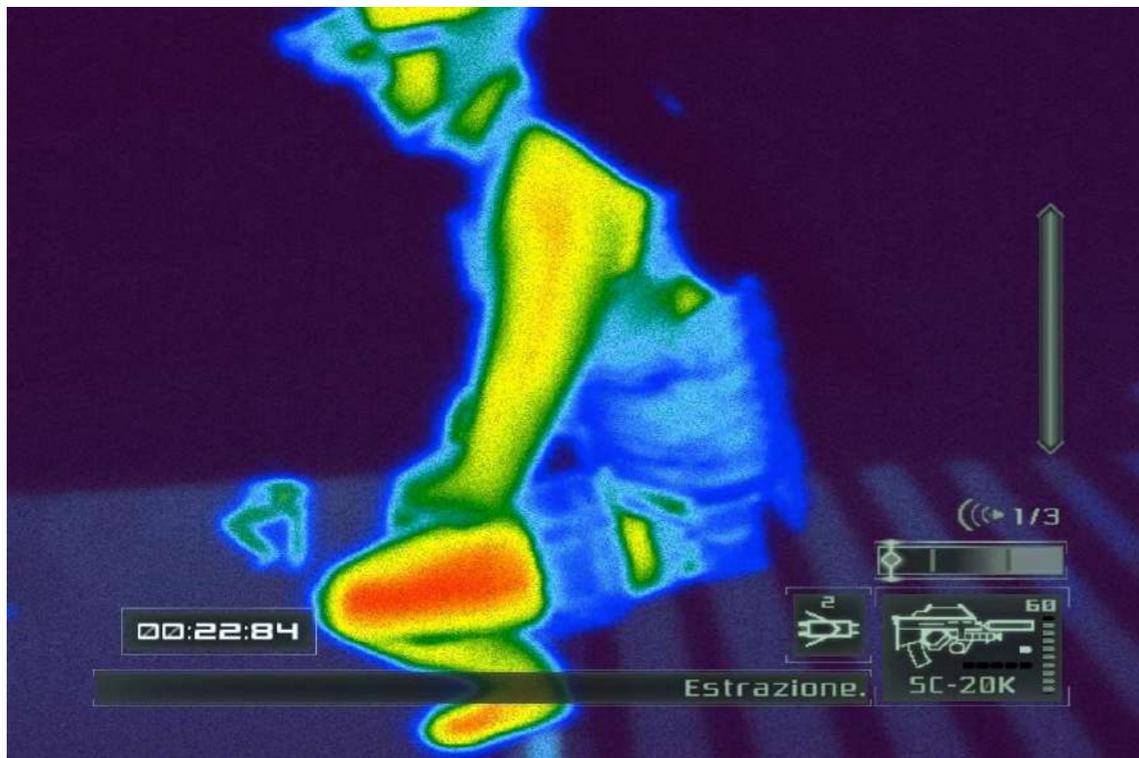
Ultraviolet

X-rays

Gamma rays

Radio waves

Solo gli astrofisici usano le diverse onde di luce?



Solo gli astrofisici usano le diverse onde di luce?



