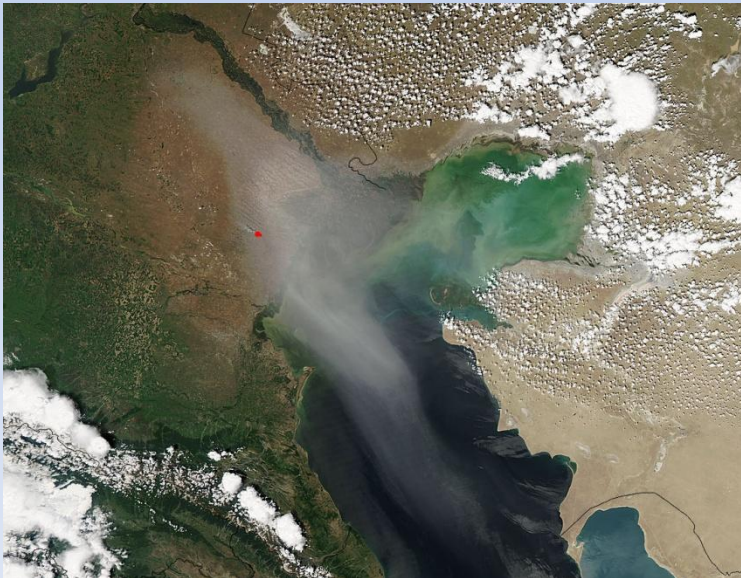


Productos MODIS

MODIS (Moderate Resolution Imaging Spectroradiometer)

- Es un sensor de 36 bandas (0.4 μm a 14.4 μm)
- Período de revisita: 1 días aprox.
- A bordo del satélite Terra (AM) y Aqua (PM)
- Resolución: 250 m (bandas 1-2), 500 m (bandas 3-7), 1 km (bandas 8-36).



Aqua/MODIS, 1 km



Terra/MODIS, 500 m

| Primary Use | Band | Bandwidth¹ |
|--|-------------|------------------------------|
| Land/Cloud/Aerosols Boundaries | 1 | 620 - 670 |
| | 2 | 841 - 876 |
| Land/Cloud/Aerosols Properties | 3 | 459 - 479 |
| | 4 | 545 - 565 |
| | 5 | 1230 - 1250 |
| | 6 | 1628 - 1652 |
| | 7 | 2105 - 2155 |
| Ocean Color/ Phytoplankton/ Biogeochemistry | 8 | 405 - 420 |
| | 9 | 438 - 448 |
| | 10 | 483 - 493 |
| | 11 | 526 - 536 |
| | 12 | 546 - 556 |
| | 13 | 662 - 672 |
| | 14 | 673 - 683 |
| | 15 | 743 - 753 |
| | 16 | 862 - 877 |
| Atmospheric Water Vapor | 17 | 890 - 920 |
| | 18 | 931 - 941 |
| | 19 | 915 - 965 |
| Surface/Cloud Temperature | 20 | 3.660 - 3.840 |
| | 21 | 3.929 - 3.989 |
| | 22 | 3.929 - 3.989 |
| | 23 | 4.020 - 4.080 |
| Atmospheric Temperature | 24 | 4.433 - 4.498 |
| | 25 | 4.482 - 4.549 |
| Cirrus Clouds Water Vapor | 26 | 1.360 - 1.390 |
| | 27 | 6.535 - 6.895 |
| | 28 | 7.175 - 7.475 |
| Cloud Properties | 29 | 8.400 - 8.700 |
| Ozone | 30 | 9.580 - 9.880 |
| Surface/Cloud Temperature | 31 | 10.780 - 11.280 |
| | 32 | 11.770 - 12.270 |
| Cloud Top Altitude | 33 | 13.185 - 13.485 |
| | 34 | 13.485 - 13.785 |
| | 35 | 13.785 - 14.085 |
| | 36 | 14.085 - 14.385 |

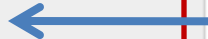
¹ Bands 1 to 19 are in nm; Bands 20 to 36 are in μm

Productos MODIS

(Fuente: https://lpdaac.usgs.gov/products/modis_products_table)

| <u>Shortname</u> | <u>Platform</u> | <u>MODIS Data Product</u> | <u>Raster type</u> | <u>Res (m)</u> | <u>Temporal Granularity</u> |
|--------------------------|-----------------|---------------------------------|--------------------|----------------|-----------------------------|
| MOD13Q1 | Terra | Vegetation Indices | Tile | 250m | 16 day |
| MYD14A1 | Aqua | Thermal Anomalies & Fire | Tile | 1000m | Daily |
| MOD14A1 | Terra | Thermal Anomalies & Fire | Tile | 1000m | Daily |
| MYD14A2 | Aqua | Thermal Anomalies & Fire | Tile | 1000m | 8 day |
| MOD14A2 | Terra | Thermal Anomalies & Fire | Tile | 1000m | 8 day |
| MYD14 | Aqua | Thermal Anomalies & Fire | Swath | 1000m | 5 min |
| MYD09CMG | Aqua | Surface Reflectance Bands 1–7 | CMG | 5600m | Daily |
| MOD09CMG | Terra | Surface Reflectance Bands 1–7 | CMG | 5600m | Daily |
| MYD09GQ | Aqua | Surface Reflectance Bands 1–2 | Tile | 250m | Daily |
| MOD09GQ | Terra | Surface Reflectance Bands 1–2 | Tile | 250m | Daily |
| MYD09GA | Aqua | Surface Reflectance Bands 1–7 | Tile | 500/1000m | Daily |
| MYD09A1 | Aqua | Surface Reflectance Bands 1–7 | Tile | 500m | 8 day |
| MYD17A2 | Aqua | Gross Primary Productivity | Tile | 1000m | 8 day |
| MOD09A1 | Terra | Surface Reflectance Bands 1–7 | Tile | 500m | 8 day |
| MYD09Q1 | Aqua | Surface Reflectance Bands 1–2 | Tile | 250m | 8 day |
| MOD09Q1 | Terra | Surface Reflectance Bands 1–2 | Tile | 250m | 8 day |
| MCD43B4 | Combined | Nadir BRDF-Adjusted Reflectance | Tile | 1000m | 16 day |
| MCD43A4 | Combined | Nadir BRDF-Adjusted Reflectance | Tile | 500m | 16 day |
| MCD43C4 | Combined | Nadir BRDF-Adjusted Reflectance | CMG | 5600m | 16 day |
| MYD15A2 | Aqua | Leaf Area Index - FPAR | Tile | 1000m | 8 day |
| MOD15A2 | Terra | Leaf Area Index - FPAR | Tile | 1000m | 8 day |

| Band | Bandwidth ¹ |
|------|------------------------|
| 1 | 620 – 670 (rojo) |
| 2 | 841 – 876 (IRc) |
| 3 | 459 – 479 (Azul) |
| 4 | 545 – 565 (verde) |
| 5 | 1230 – 1250 (IRc) |
| 6 | 1628 – 1652 (IRc) |
| 7 | 2105 – 2155 (IRc) |



| | | | | | |
|--------------------------|----------|---------------------------------------|-------|-------|---------|
| MOD15A2 | Terra | Leaf Area Index - FPAR | Tile | 1000m | 8 day |
| MCD15A3 | Combined | Leaf Area Index - FPAR | Tile | 1000m | 4 day |
| MOD44WV | Terra | Land Water Mask Derived | Tile | 250m | None |
| MYD11C3 | Aqua | Land Surface Temperature & Emissivity | CMG | 5600m | Monthly |
| MOD11C3 | Terra | Land Surface Temperature & Emissivity | CMG | 5600m | Monthly |
| MYD11B1 | Aqua | Land Surface Temperature & Emissivity | Tile | 5600m | Daily |
| MOD11B1 | Terra | Land Surface Temperature & Emissivity | Tile | 5600m | Daily |
| MYD11A1 | Aqua | Land Surface Temperature & Emissivity | Tile | 1000m | Daily |
| MYD11C1 | Aqua | Land Surface Temperature & Emissivity | CMG | 5600m | Daily |
| MOD11C1 | Terra | Land Surface Temperature & Emissivity | CMG | 5600m | Daily |
| MOD11A2 | Terra | Land Surface Temperature & Emissivity | Tile | 1000m | 8 day |
| MYD11C2 | Aqua | Land Surface Temperature & Emissivity | CMG | 5600m | 8 day |
| MOD11C2 | Terra | Land Surface Temperature & Emissivity | CMG | 5600m | 8 day |
| MYD11_L2 | Aqua | Land Surface Temperature & Emissivity | Swath | 1000m | 5 min |
| MCD12Q1 | Combined | Land Cover Type | Tile | 500m | Yearly |
| MCD12C1 | Combined | Land Cover Type | CMG | 5600m | Yearly |
| MCD12Q2 | Combined | Land Cover Dynamics | Tile | 500m | Yearly |

| | | | | | |
|--------------------------|----------|---------------------------------------|-------|-----------|---------|
| MCD43B3 | Combined | Albedo | Tile | 1000m | 16 day |
| MCD43C3 | Combined | Albedo | CMG | 5600m | 16 day |
| MYD13C2 | Aqua | Vegetation Indices | CMG | 5600m | Monthly |
| MOD13C2 | Terra | Vegetation Indices | CMG | 5600m | Monthly |
| MYD13C1 | Aqua | Vegetation Indices | CMG | 5600m | 16 day |
| MOD13C1 | Terra | Vegetation Indices | CMG | 5600m | 16 day |
| MYD13A3 | Aqua | Vegetation Indices | Tile | 1000m | Monthly |
| MOD13A3 | Terra | Vegetation Indices | Tile | 1000m | Monthly |
| MYD13Q1 | Aqua | Vegetation Indices | Tile | 250m | 16 day |
| MYD13A2 | Aqua | Vegetation Indices | Tile | 1000m | 16 day |
| MOD13A2 | Terra | Vegetation Indices | Tile | 1000m | 16 day |
| MYD13A1 | Aqua | Vegetation Indices | Tile | 500m | 16 day |
| MCD43B2 | Combined | BRDF-Albedo Quality | Tile | 1000m | 16 day |
| MYD11A2 | Aqua | Land Surface Temperature & Emissivity | Tile | 1000m | 8 day |
| MCD45A1 | Combined | Burned Area | Tile | 500m | Monthly |
| MOD11A1 | Terra | Land Surface Temperature & Emissivity | Tile | 1000m | Daily |
| MOD44B | Terra | Vegetation Continuous Fields | Tile | 250m | Yearly |
| MOD14 | Terra | Thermal Anomalies & Fire | Swath | 1000m | 5 min |
| MOD17A3 | Terra | Net Primary Productivity | Tile | 1000m | Yearly |
| MCD15A2 | Combined | Leaf Area Index - FPAR | Tile | 1000m | 8 day |
| MOD13A1 | Terra | Vegetation Indices | Tile | 500m | 16 day |
| MCD43A3 | Combined | Albedo | Tile | 500m | 16 day |
| MOD11_L2 | Terra | Land Surface Temperature & Emissivity | Swath | 1000m | 5 min |
| MOD09GA | Terra | Surface Reflectance Bands 1–7 | Tile | 500/1000m | Daily |

Nomenclatura de los productos

MOD01.A2002032.1015.003.2002034184356.hdf

Nombre del producto

Año (aaaa) y día (ddd) en que fue tomado el dato

Hora en la que fue tomado el dato (UTC o GTM).

Versión del producto

Fecha y hora de producción del producto
(aaaaddhhmss)

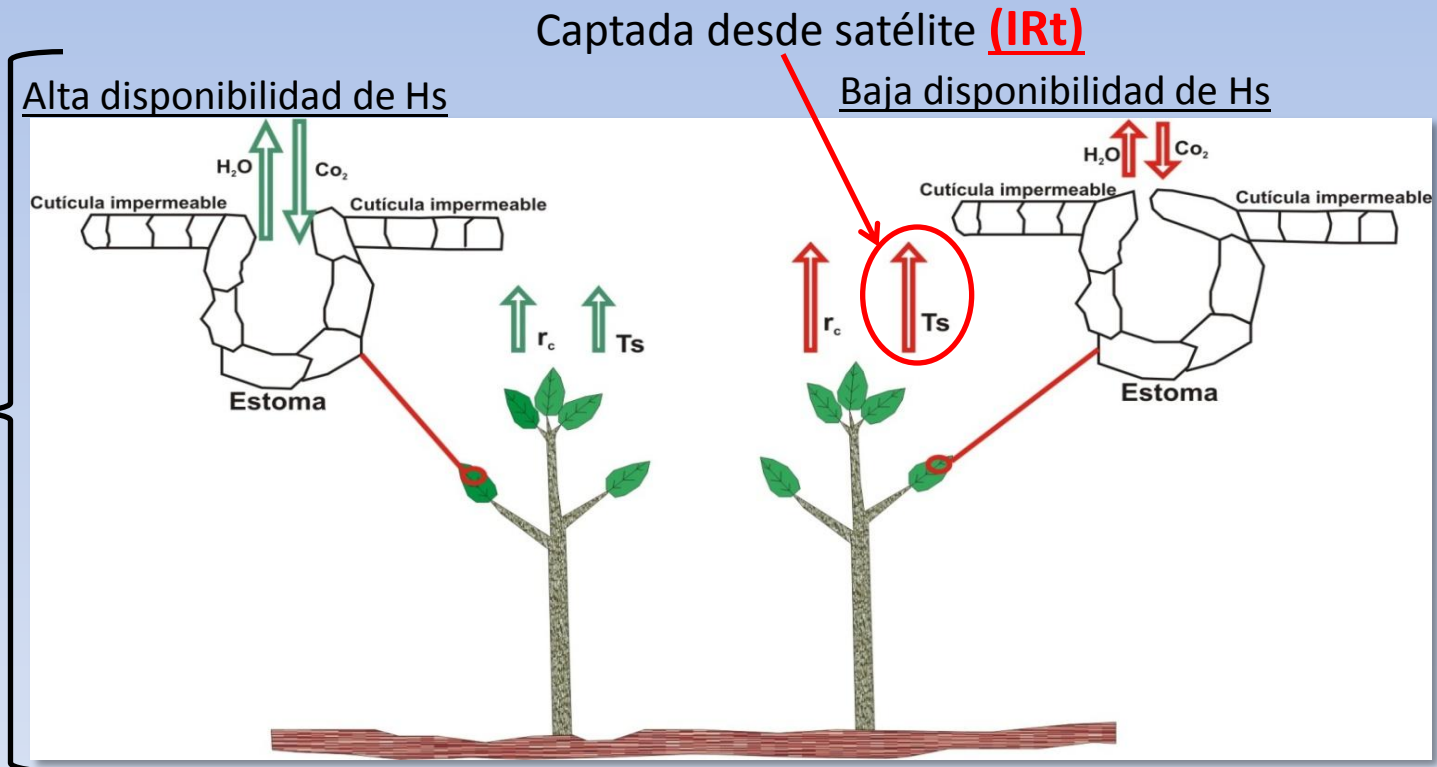
Cálculo del TVDI-Evaluación del estrés hídrico

Respuesta en **IRc y rojo** → vigorosidad y salud de la vegetación por cambios en **Hs**

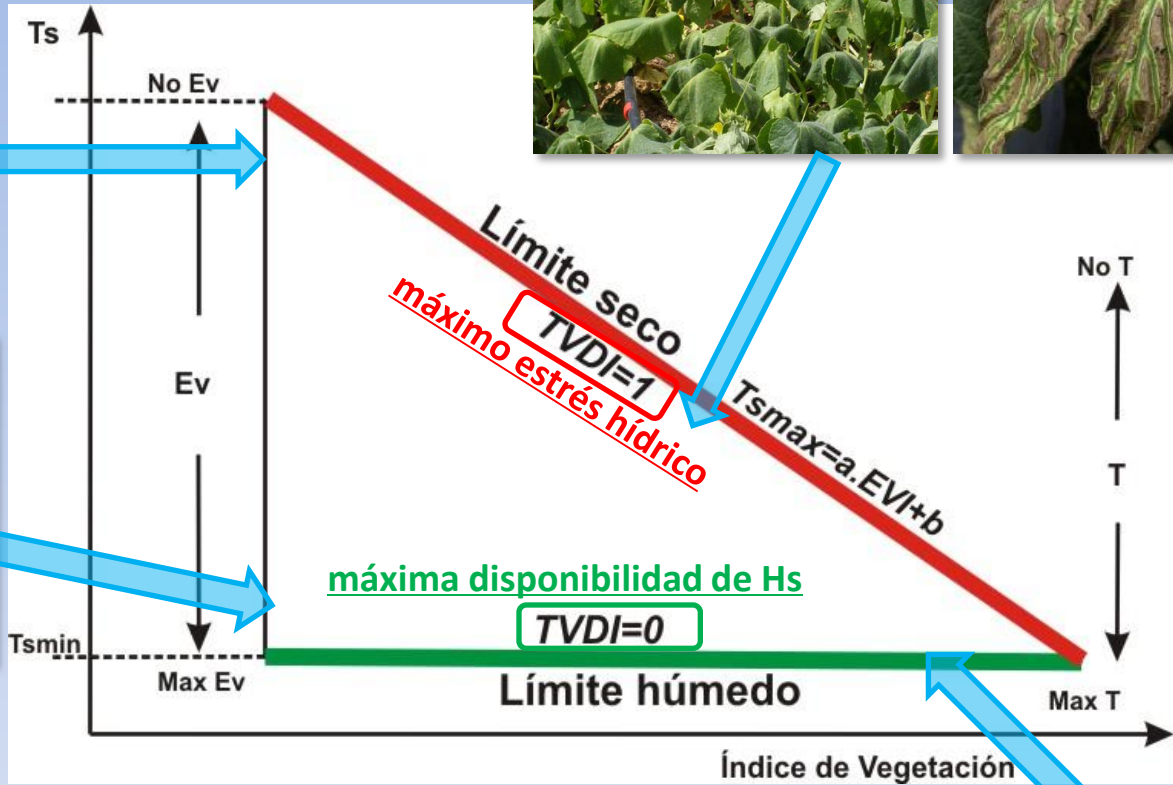


Indice de vegetación

Cómo incide **Hs** en la **Ts**?

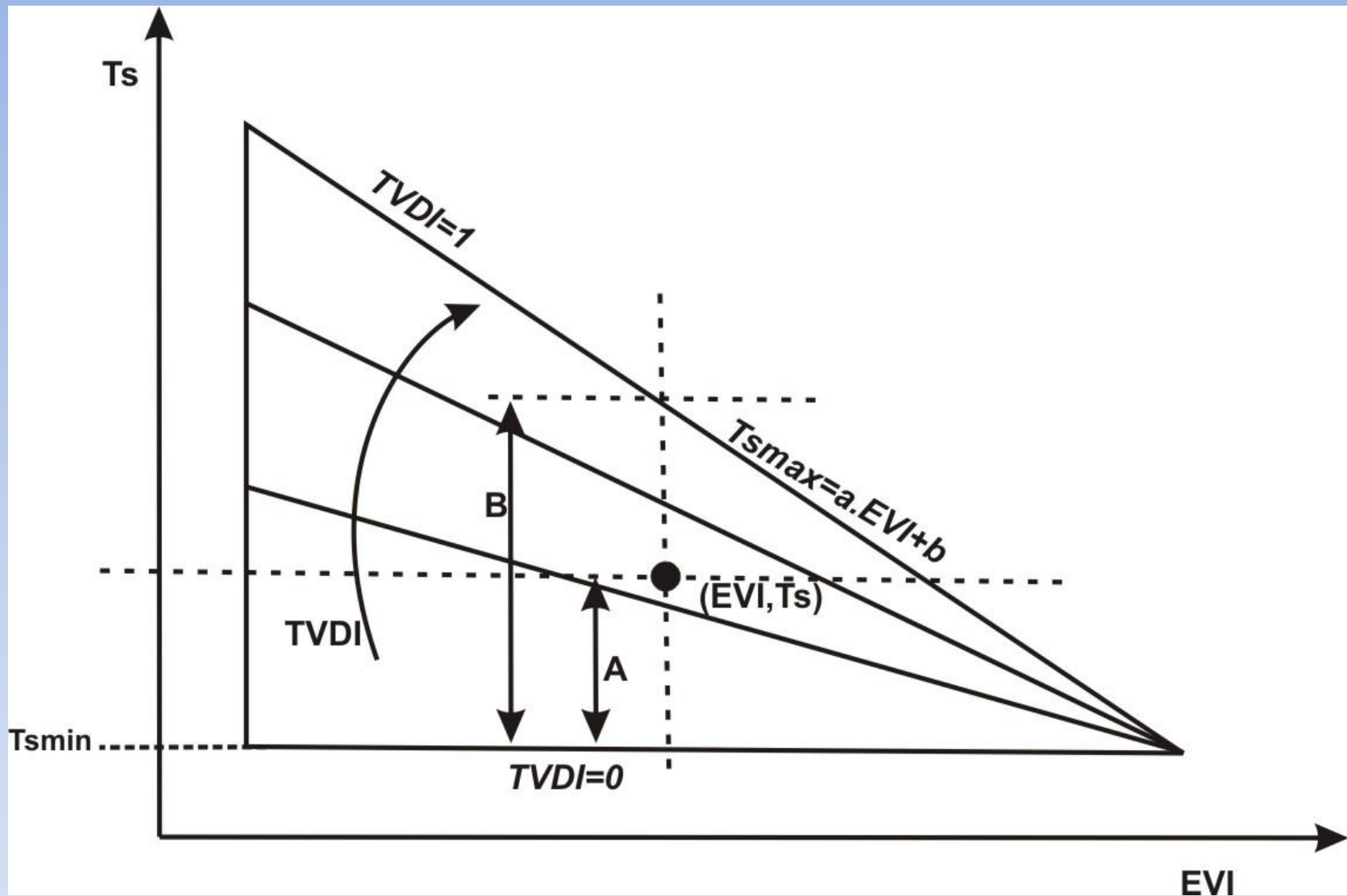


Triángulo de dispersión Ts e índice de vegetación



$$TVDI = \frac{T_s - T_{s \min}}{T_{s \max} - T_{s \min}}$$





Esquema conceptual del TVDI.