

Biodiversity of Islands in Face of Climate Change

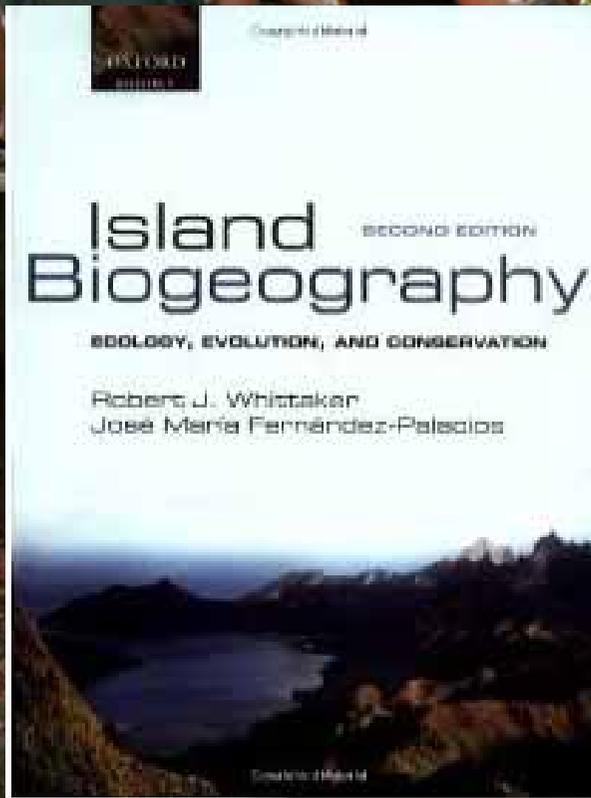
**La Palma, Canary Islands
April 2011**

Prof. Dr. Carl Beierkuhnlein, Universität Bayreuth
Prof. Dr. Anke Jentsch, Universität Bayreuth
Prof. Dr. José-Maria Fernández-Palacios, Universidad La Laguna

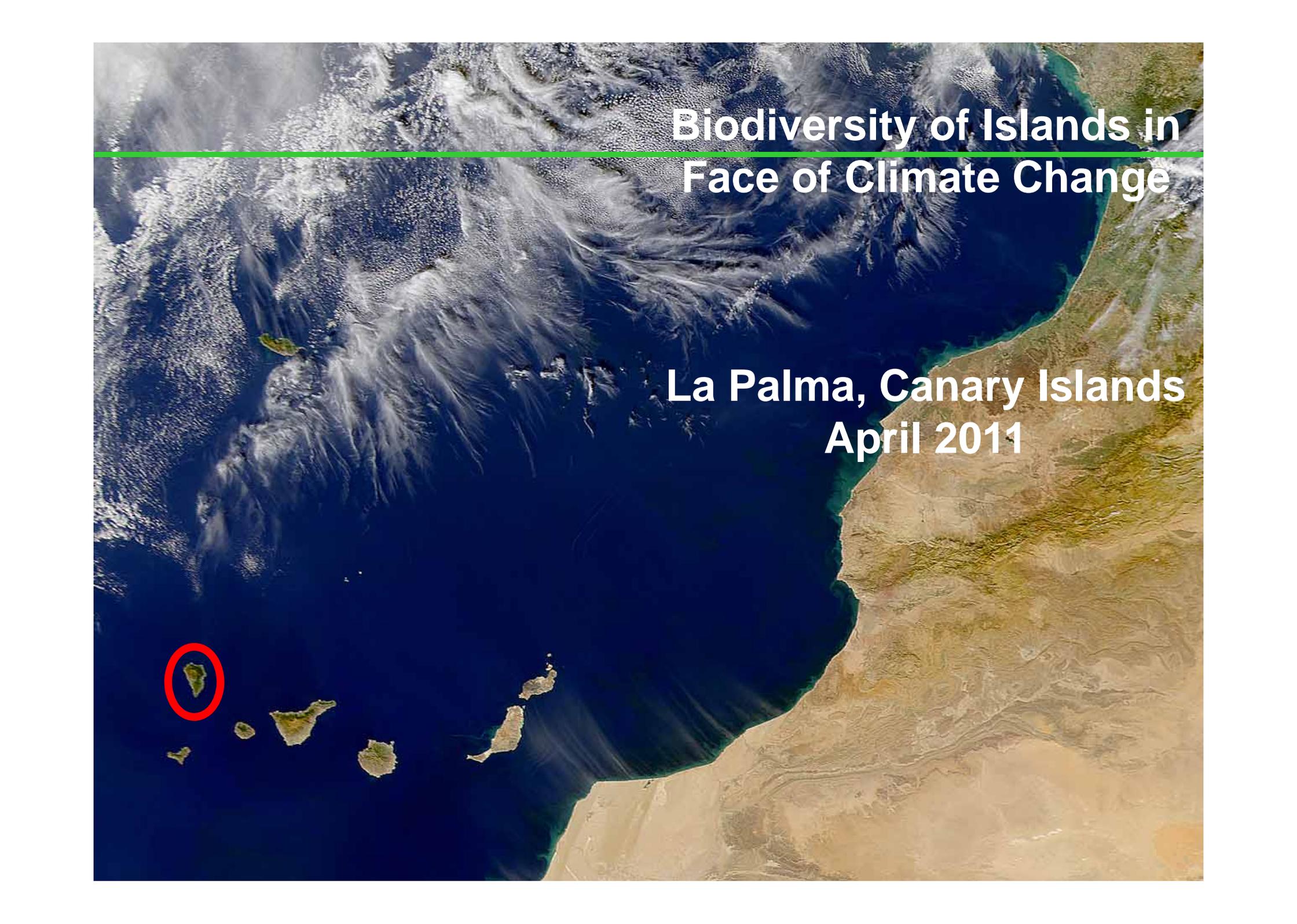


biogeografie
uni bayreuth

La Palma



Prof. Dr. José-Maria
Fernández-Palacios, La Laguna

A satellite image of the Canary Islands archipelago in the Atlantic Ocean. The islands are visible as small green and brown patches against the dark blue water. The island of La Palma is circled in red. The African continent is visible on the right side of the image. A green horizontal line is drawn across the top of the image.

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La Palma



Karte 2 :
Übersichtskarte
der Insel La Palma

— Staatsstraße
— Nebenstraße

● Ort über 20.000
Einwohner
● Ort unter 20.000
Einwohner

Maßstab 1 : 260.000



North

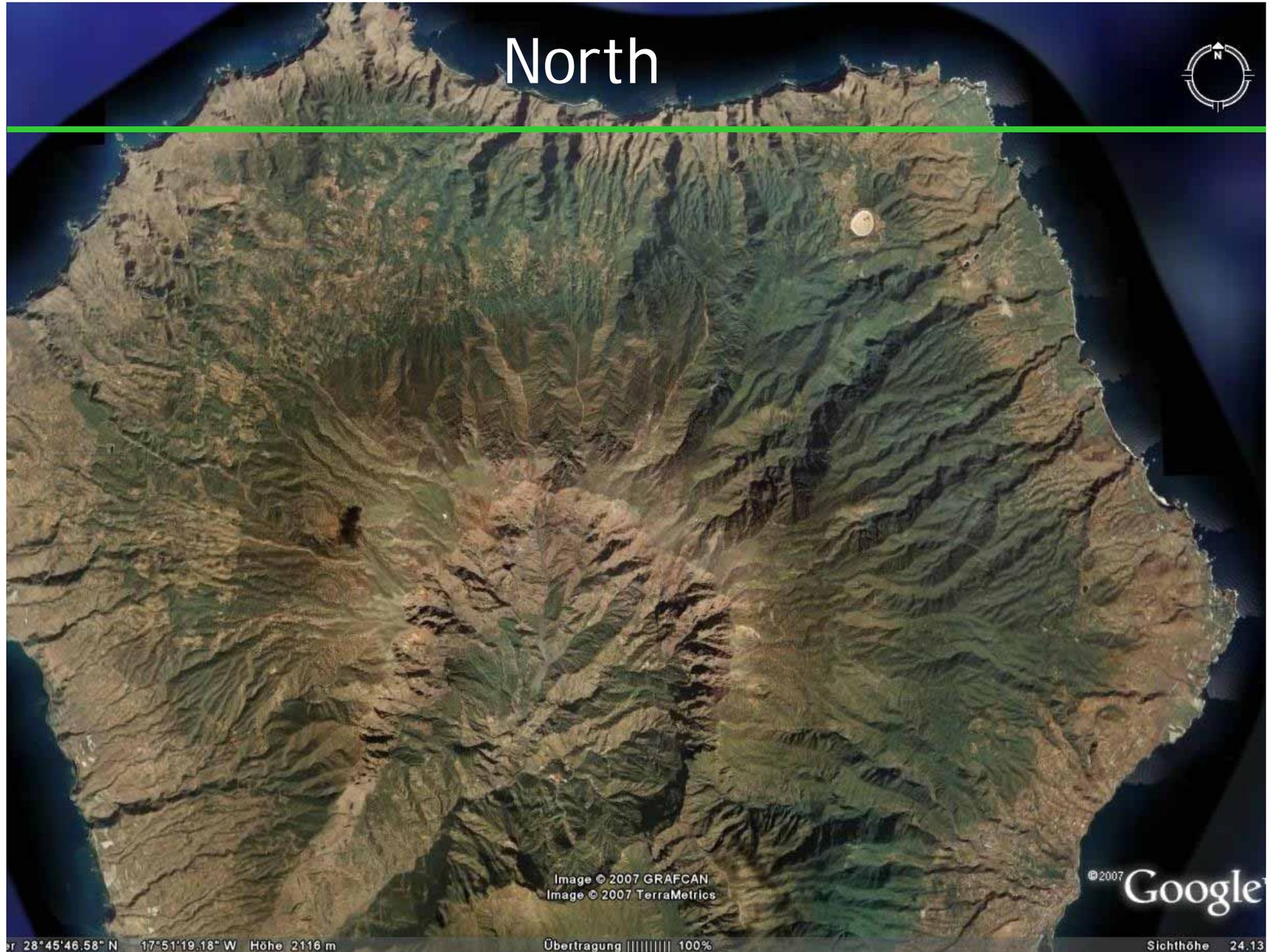


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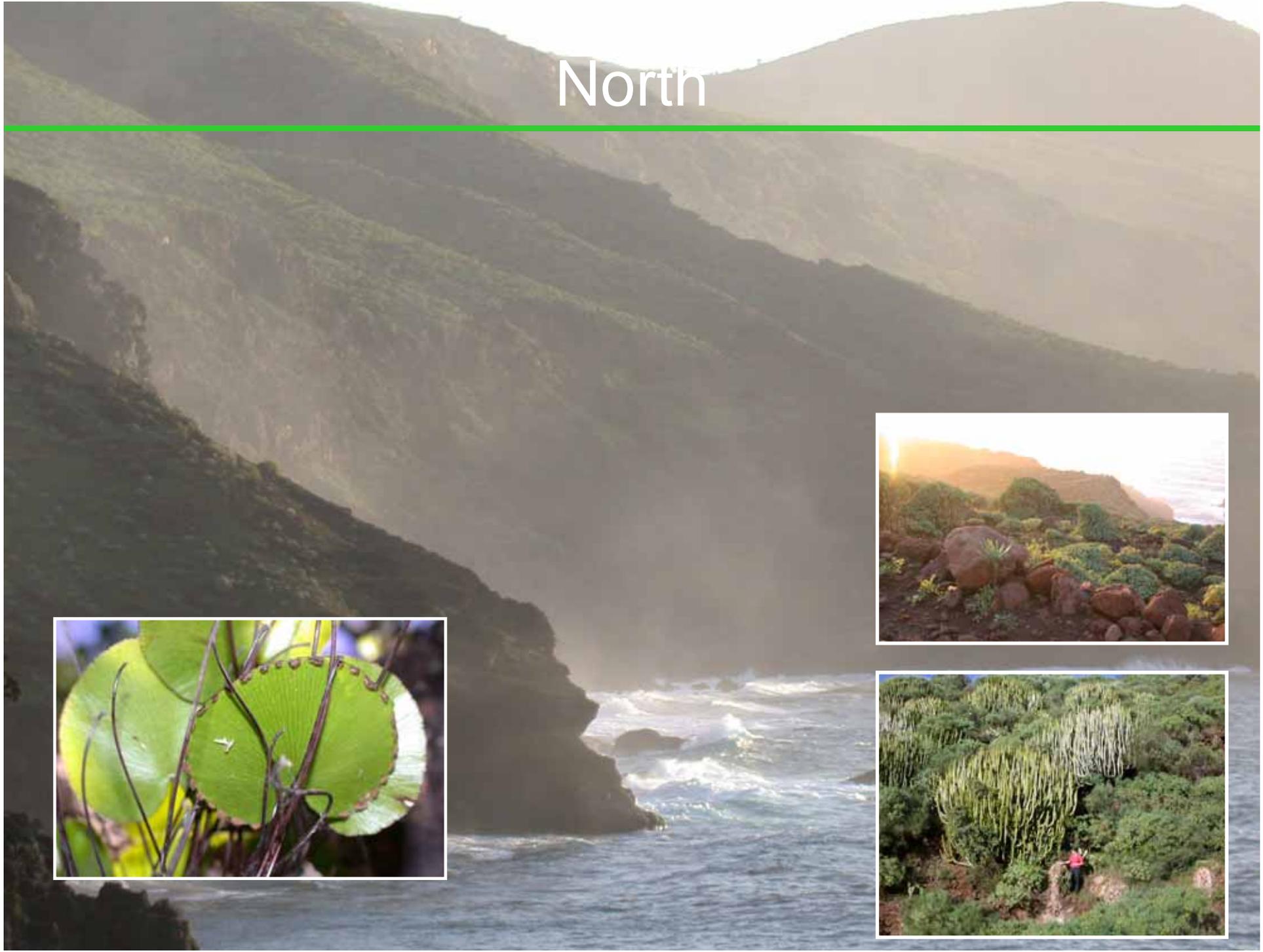
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28°45'46.58" N 17°51'19.18" W Höhe 2116 m

Übertragung ||||| 100%

Sichthöhe 24.13

North

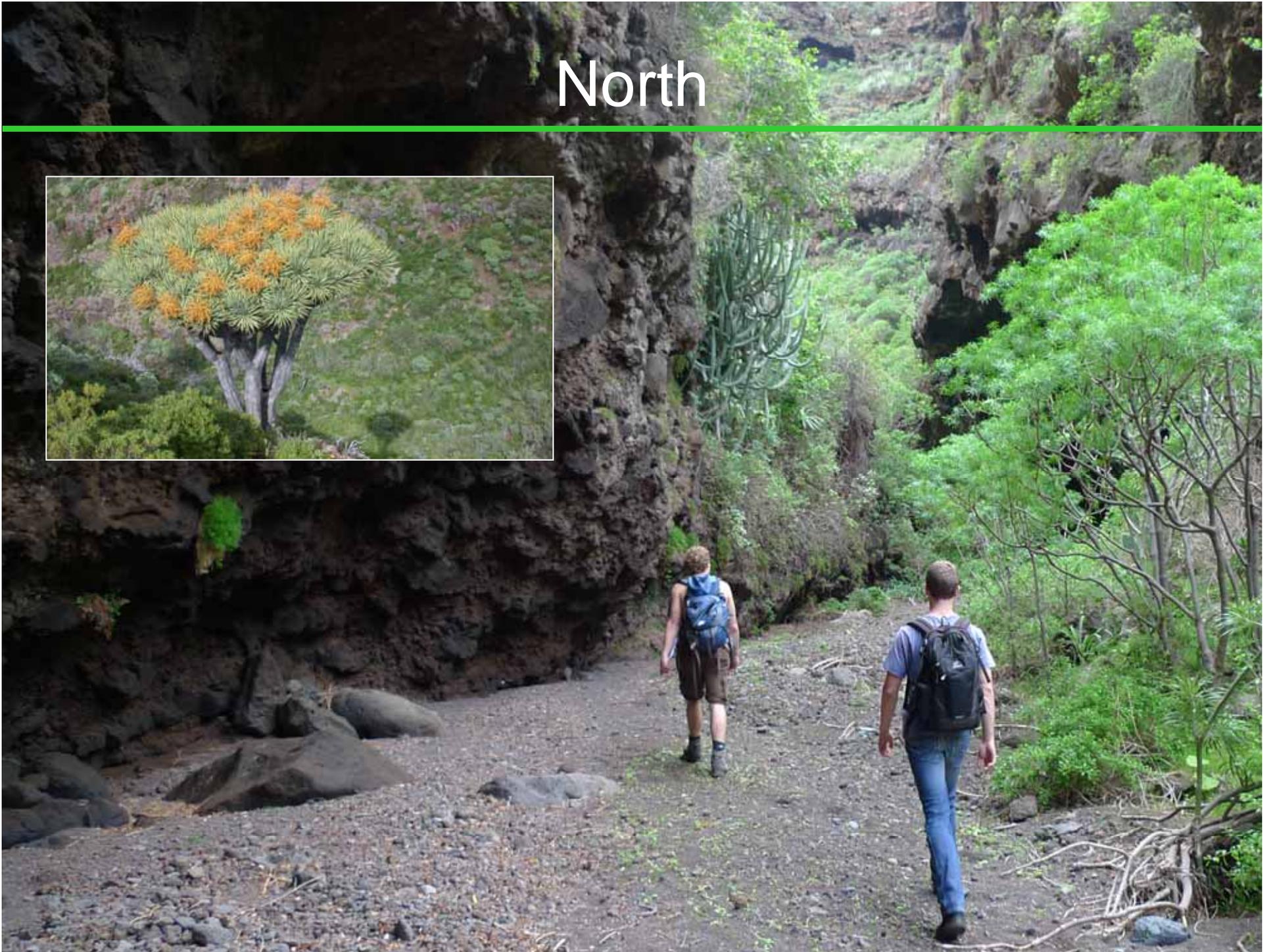




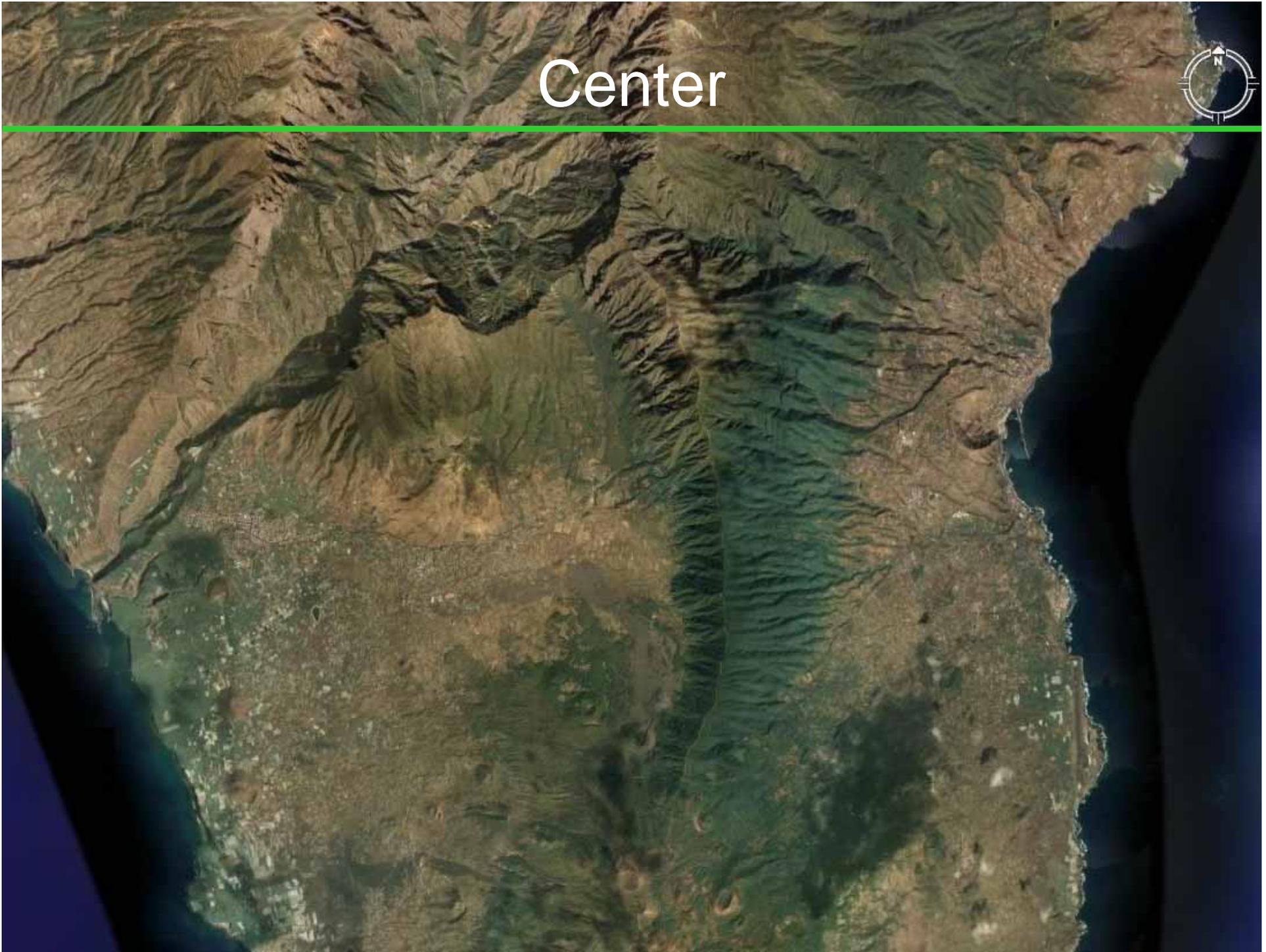
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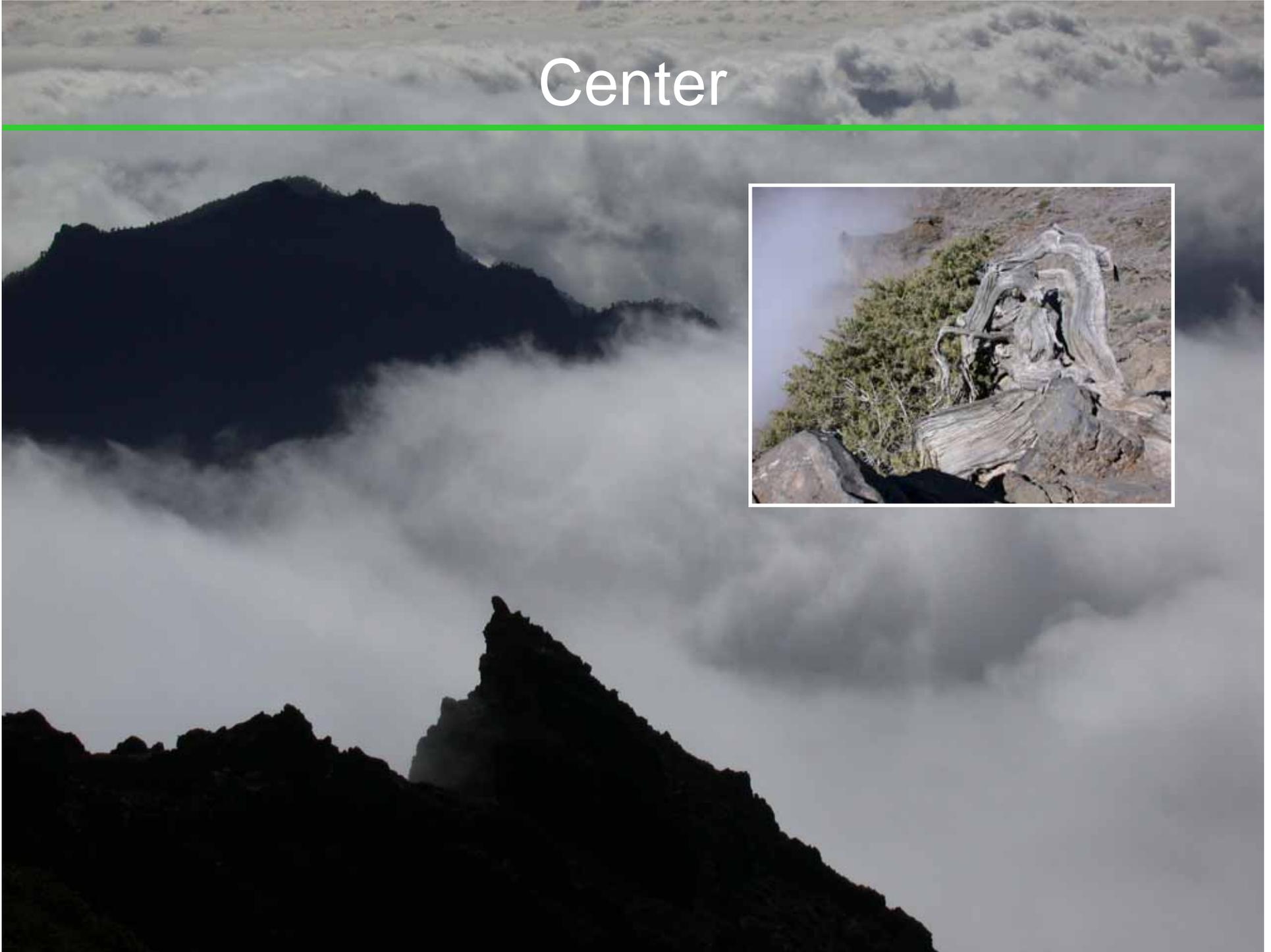
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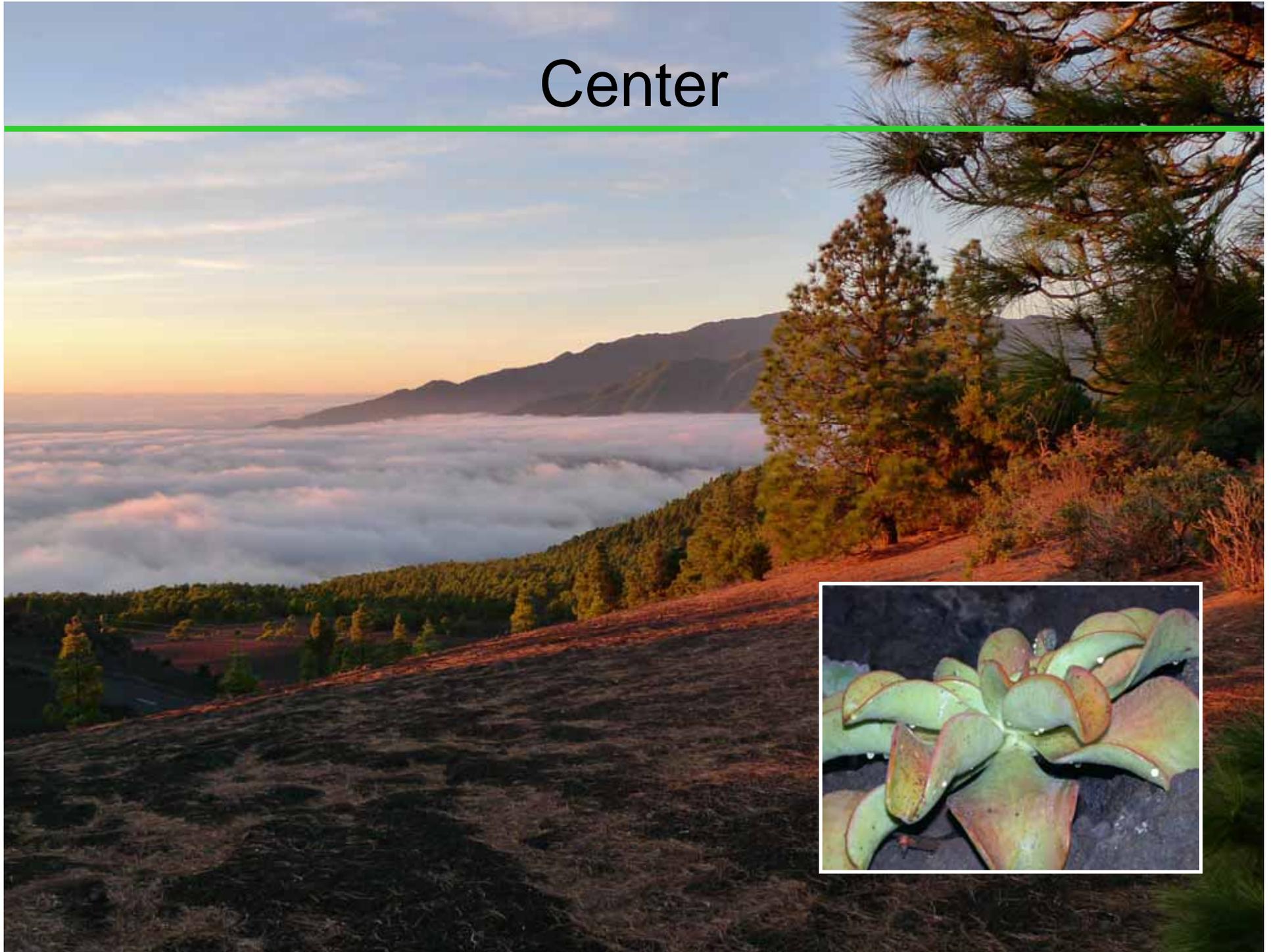
Center



Center



Center



Center



South

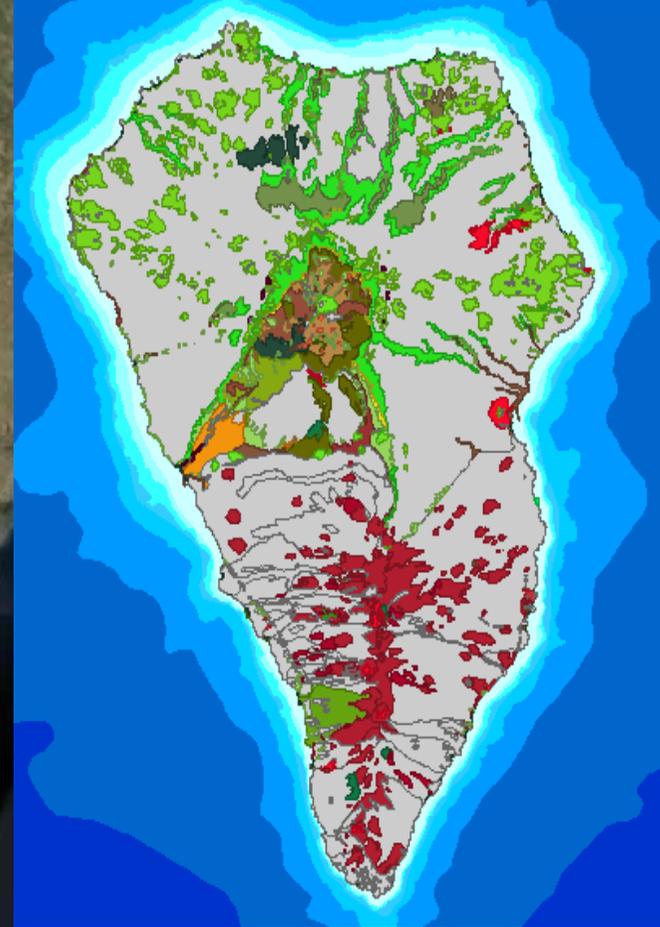


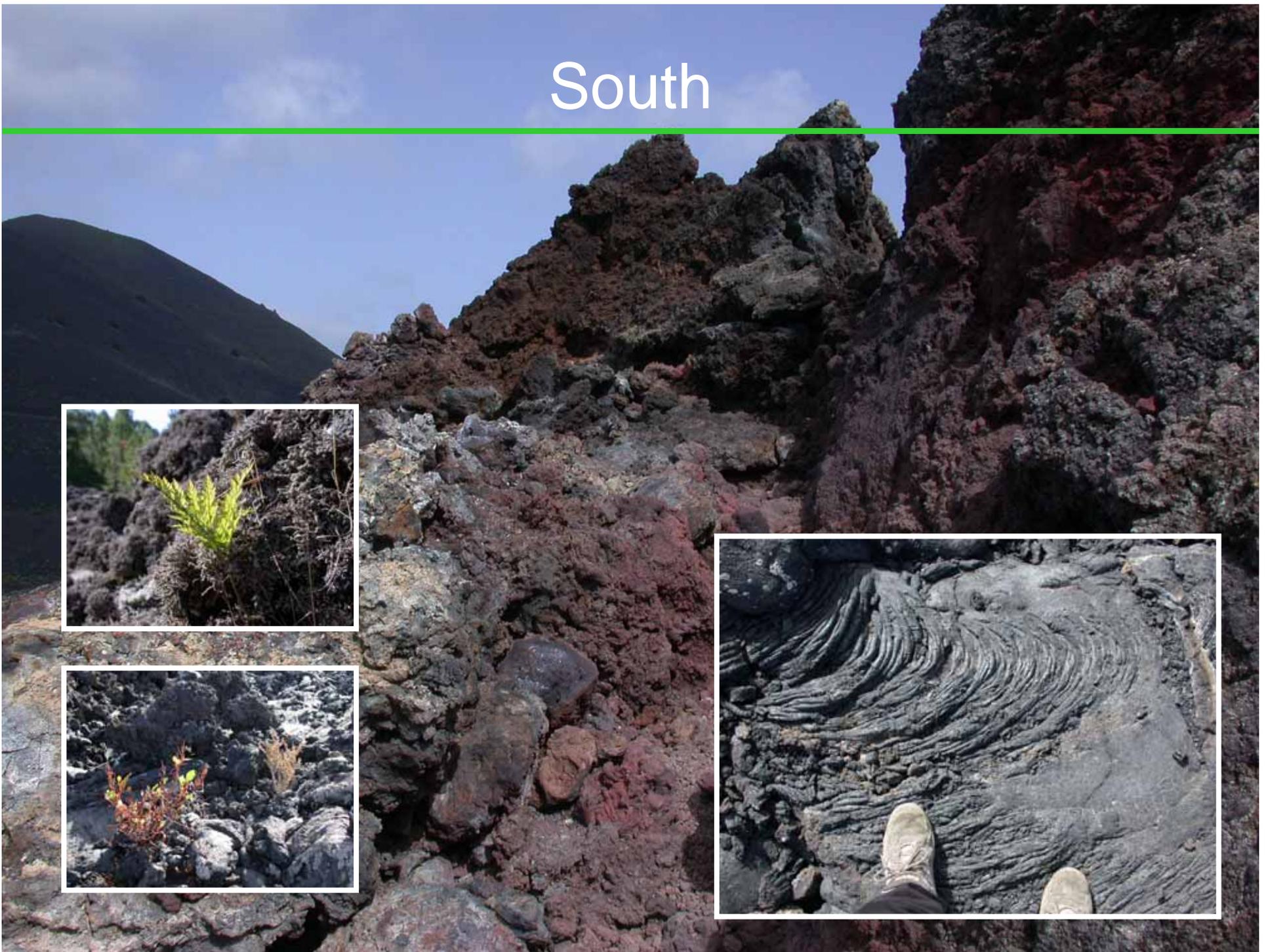
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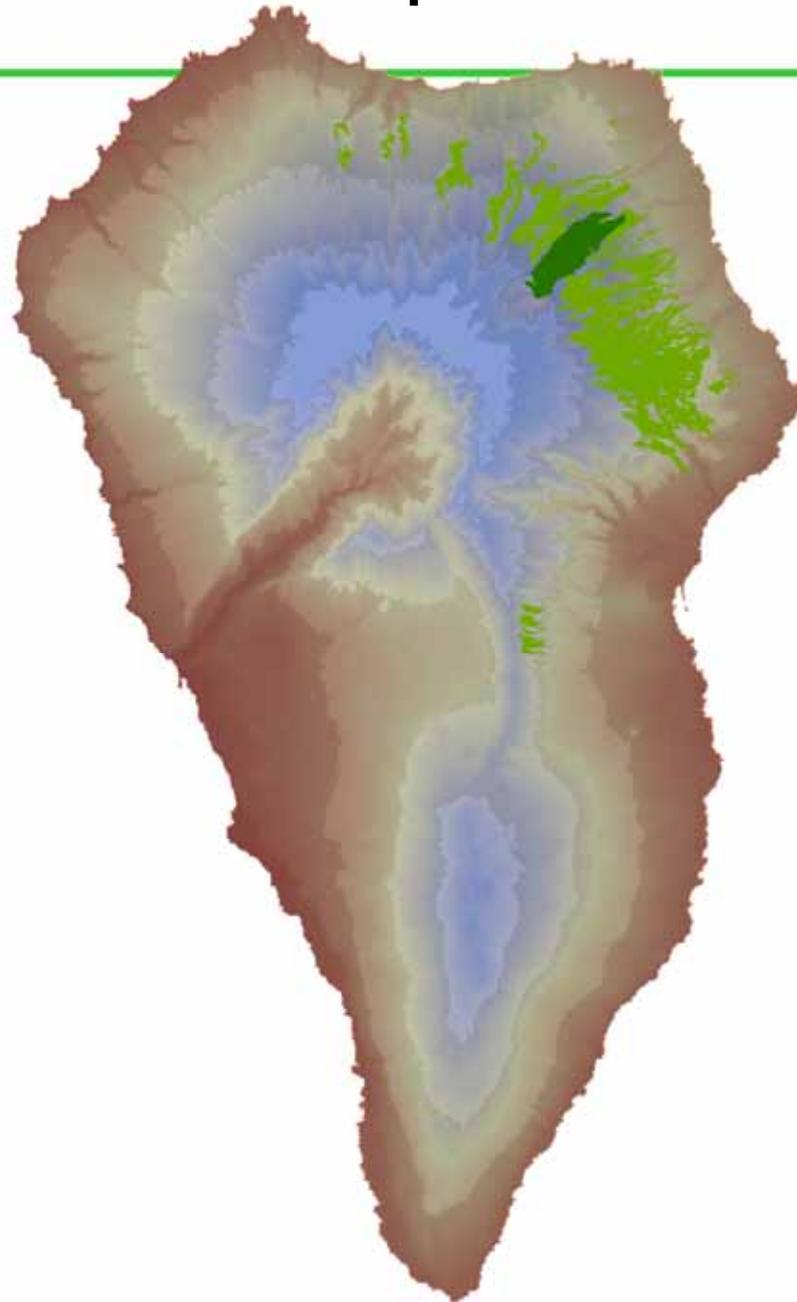
South



South



Temperature Regime



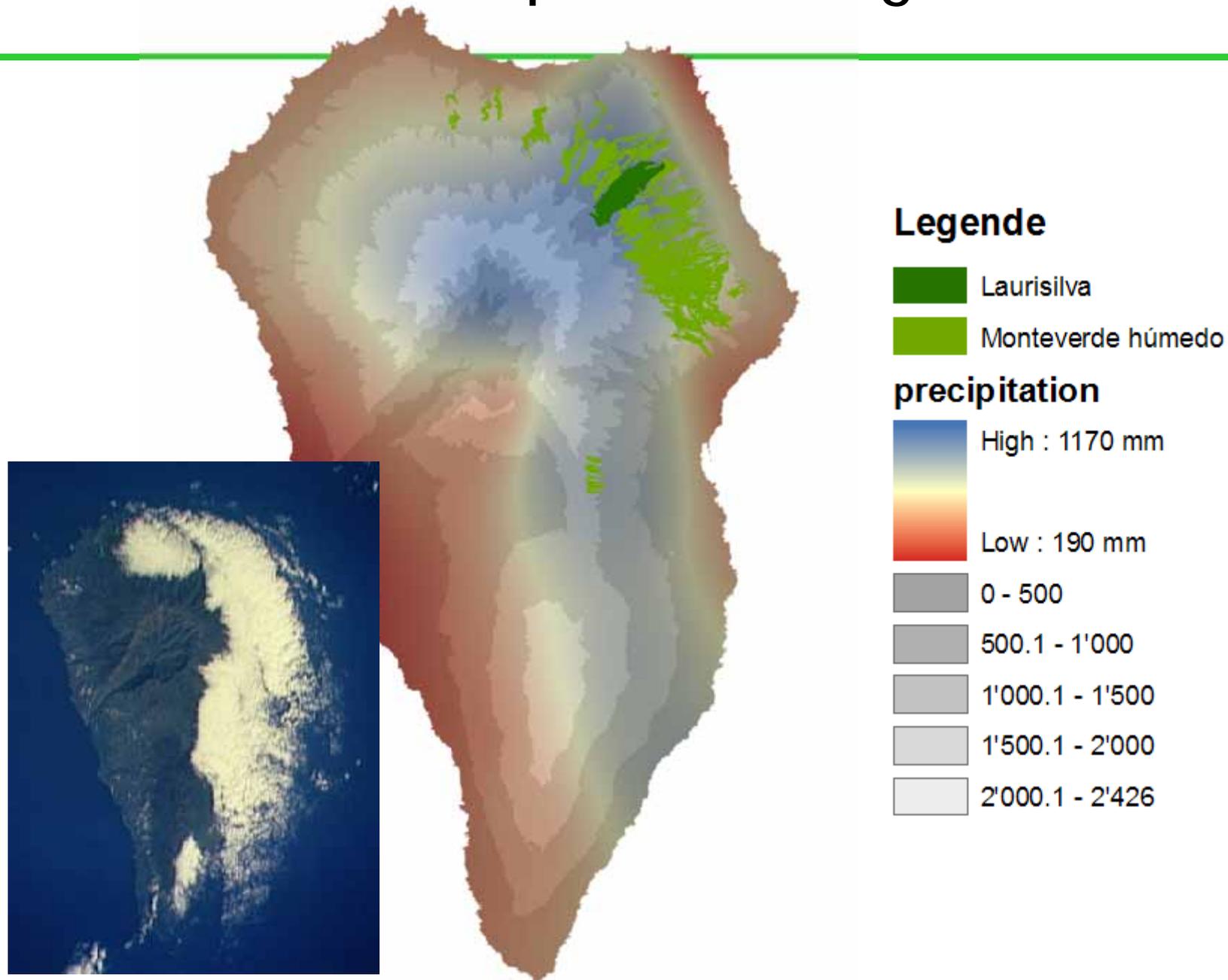
Legende

-  Laurisilva
-  Monteverde húmedo

t max mean

-  High : 24.7 °C
-  Low : 10.9 °C
-  0 - 500
-  500.1 - 1'000
-  1'000.1 - 1'500
-  1'500.1 - 2'000
-  2'000.1 - 2'426

Precipitation Regime



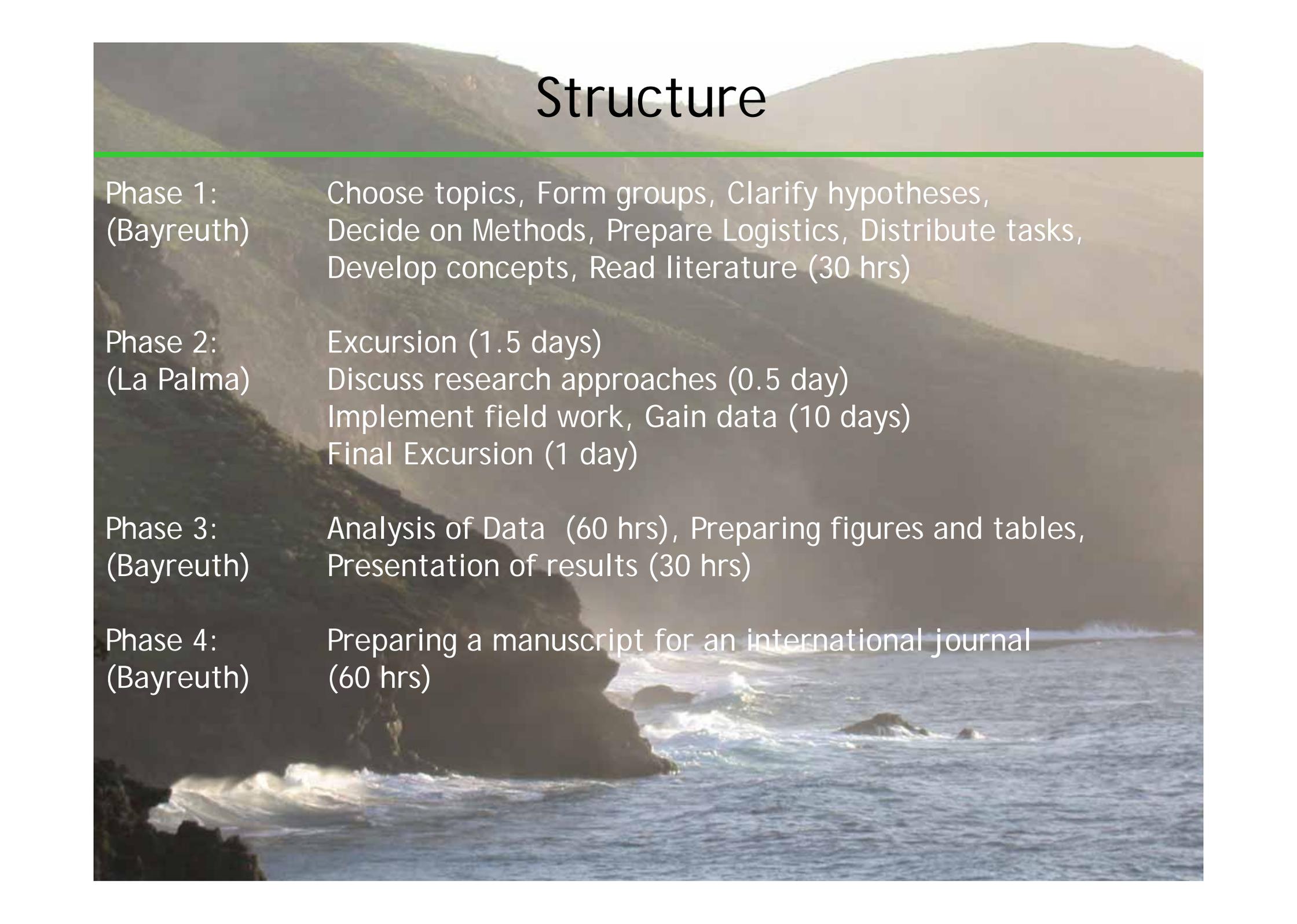
Workload and ECTS

5 ECTS for preparation and field work (1 credit for the generation of hypotheses and methodological concept; 4 credits for the stay in La Palma and data recording).

5 ECTS for subsequent data analyses (3 credits) and preparation of manuscript as a final report (2 credits).

A successful participation in both parts is obligatory to achieve any ECTS.

Structure



Phase 1:
(Bayreuth) Choose topics, Form groups, Clarify hypotheses,
Decide on Methods, Prepare Logistics, Distribute tasks,
Develop concepts, Read literature (30 hrs)

Phase 2:
(La Palma) Excursion (1.5 days)
Discuss research approaches (0.5 day)
Implement field work, Gain data (10 days)
Final Excursion (1 day)

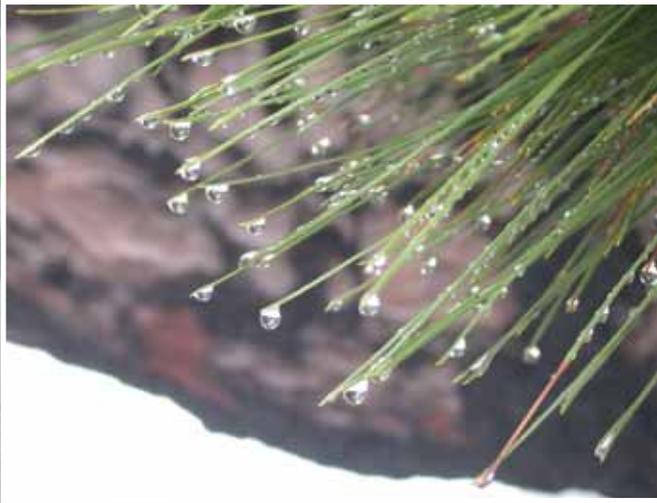
Phase 3:
(Bayreuth) Analysis of Data (60 hrs), Preparing figures and tables,
Presentation of results (30 hrs)

Phase 4:
(Bayreuth) Preparing a manuscript for an international journal
(60 hrs)

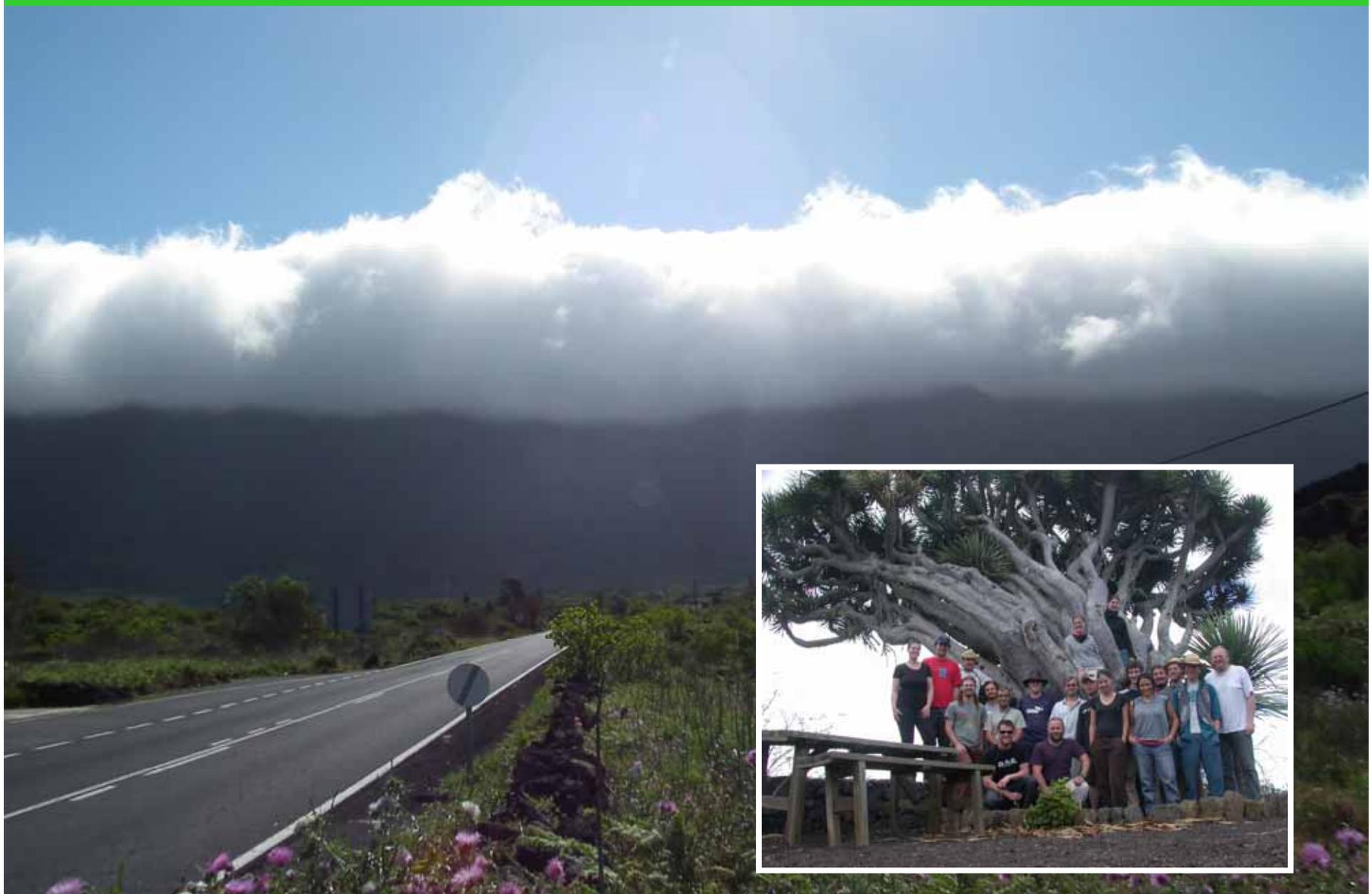
Excursion



Excursion



Excursion



Excursion



Excursion

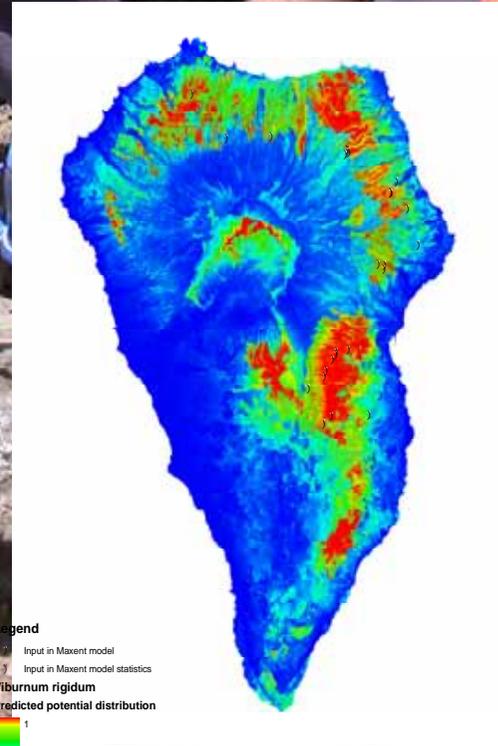


Research Topics

Research topics / problems will be rendered precisely to research hypotheses during the preparation phase.

Topics

Are endemic species more sensitive to climate change? Will the bioclimatic niche of island endemic species be available also in the near future? What are the limits to map bioclimatic niches in the caldera and can gaps be extrapolated?



Topics

Can characteristic patterns of living and dead vegetation be identified by remote sensing in the Codesar (alpine scrub)?
Are spatial patterns reflecting environmental stress or rather biotic interactions?



Topics

Are there rules for facilitation on extreme sites?
How do plant species profit from other species?



Topics

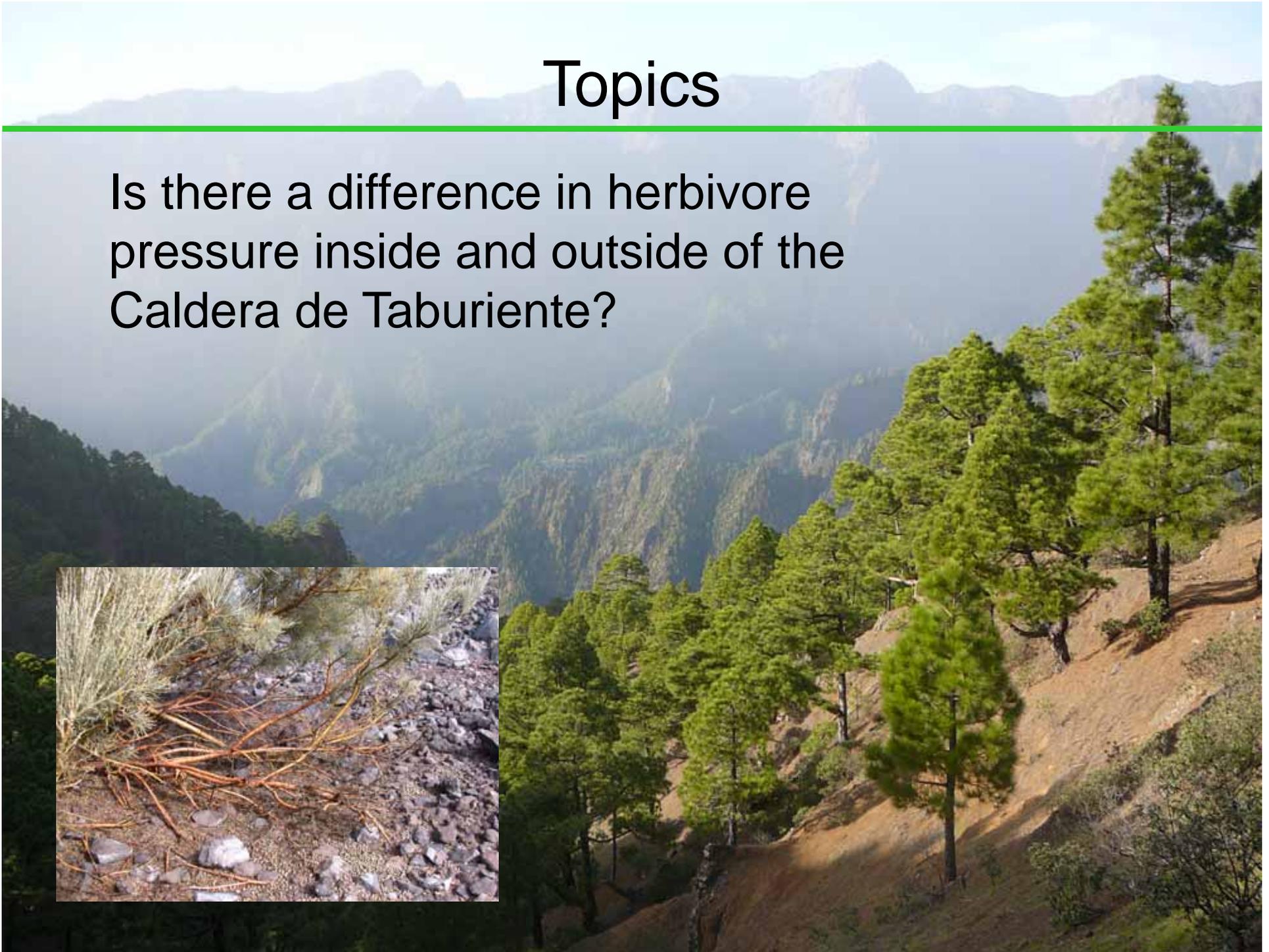
Does perennial species turnover in community composition respond to ecological / climatic gradients? Or are other influences (e.g. human impact, unoccupied niches) on species composition causing deviations from ecological gradients?



- along Altitudinal Gradients (T)
- along Aridity Gradients (Precip.)

Topics

Is there a difference in herbivore pressure inside and outside of the Caldera de Taburiente?



Topics



Do aggressive invasive species (*Nicotiana glauca*) exhibit habitat preferences? Are there demographic differences in *Nicotiana* populations reflecting the invasion process?

Topics



Can the ecological niches of introduced *Opuntia* species be traced and do they reflect their natural bioclimatic niche?
Or are these introduced species invasive beyond their natural ecological range?
Or could they not (yet) fill their niche out completely?

Topics

Do changes in species distribution occur during the last decades? Comparing Voggenreiter's maps with current patterns for key species.



Topics

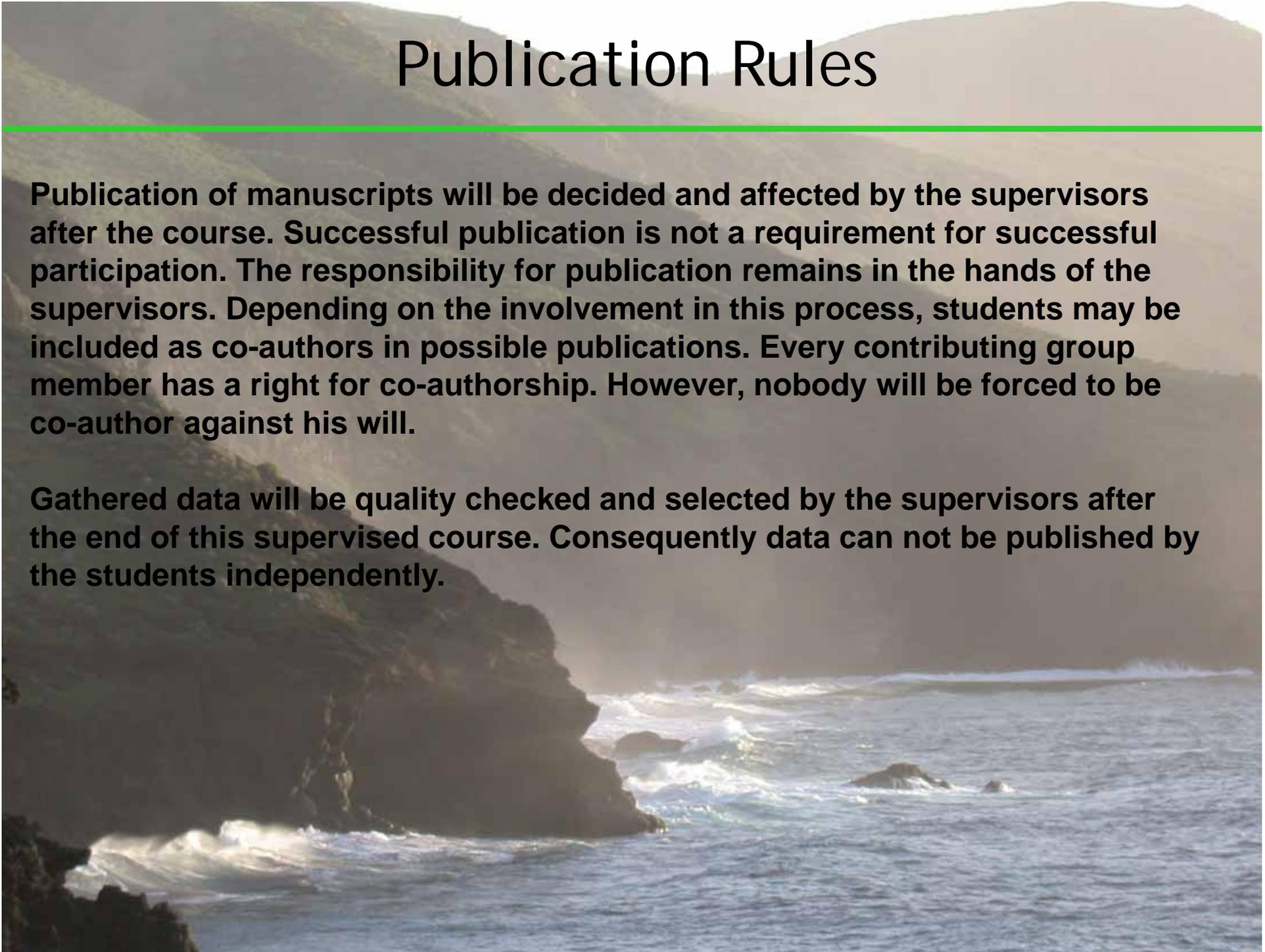
Which strategies can be found in plant species to cope with extreme site conditions of lapilli substrate? Why is this environment so hostile?



Publication Rules

Publication of manuscripts will be decided and affected by the supervisors after the course. Successful publication is not a requirement for successful participation. The responsibility for publication remains in the hands of the supervisors. Depending on the involvement in this process, students may be included as co-authors in possible publications. Every contributing group member has a right for co-authorship. However, nobody will be forced to be co-author against his will.

Gathered data will be quality checked and selected by the supervisors after the end of this supervised course. Consequently data can not be published by the students independently.



Accommodation: Houses and perhaps Tents



Mobility

One Rental Car per Group (3 People)
(1 Driver per Group)



Costs

The course is supported by the faculty and by study fees. However, costs of about 500 Euro are possible (for flight, accomodation, rental cars etc.).

Application is valid when 100 € are received.
Bank account will be announced in January.

See you!

