

The influence of local environmental and socio-economic conditions on the impacts of ash storms

Pablo Forte⁽¹⁾, Lucia Domínguez⁽²⁾, Costanza Bonadonna⁽²⁾, María Clara Lamberti^(3,4), Chris E. Gregg⁽⁵⁾, Donaldo Bran⁽⁶⁾ and Jonathan Castro⁽¹⁾

(1) Institute of Geosciences, University of Mainz, Germany | (2) Department of Earth Sciences, University of Geneva, Switzerland | (3) IDEAN (UBA-CONICET), Buenos Aires, Argentina | (4) GESVA, Department of Earth Sciences, University of Buenos Aires, Argentina | (5) Department of Geosciences, East Tennessee State University, USA | (6) INTA, Argentina

Introduction

Volcanic ash wind-induced remobilization events have increasingly been reported in different areas around the world during the last decades.

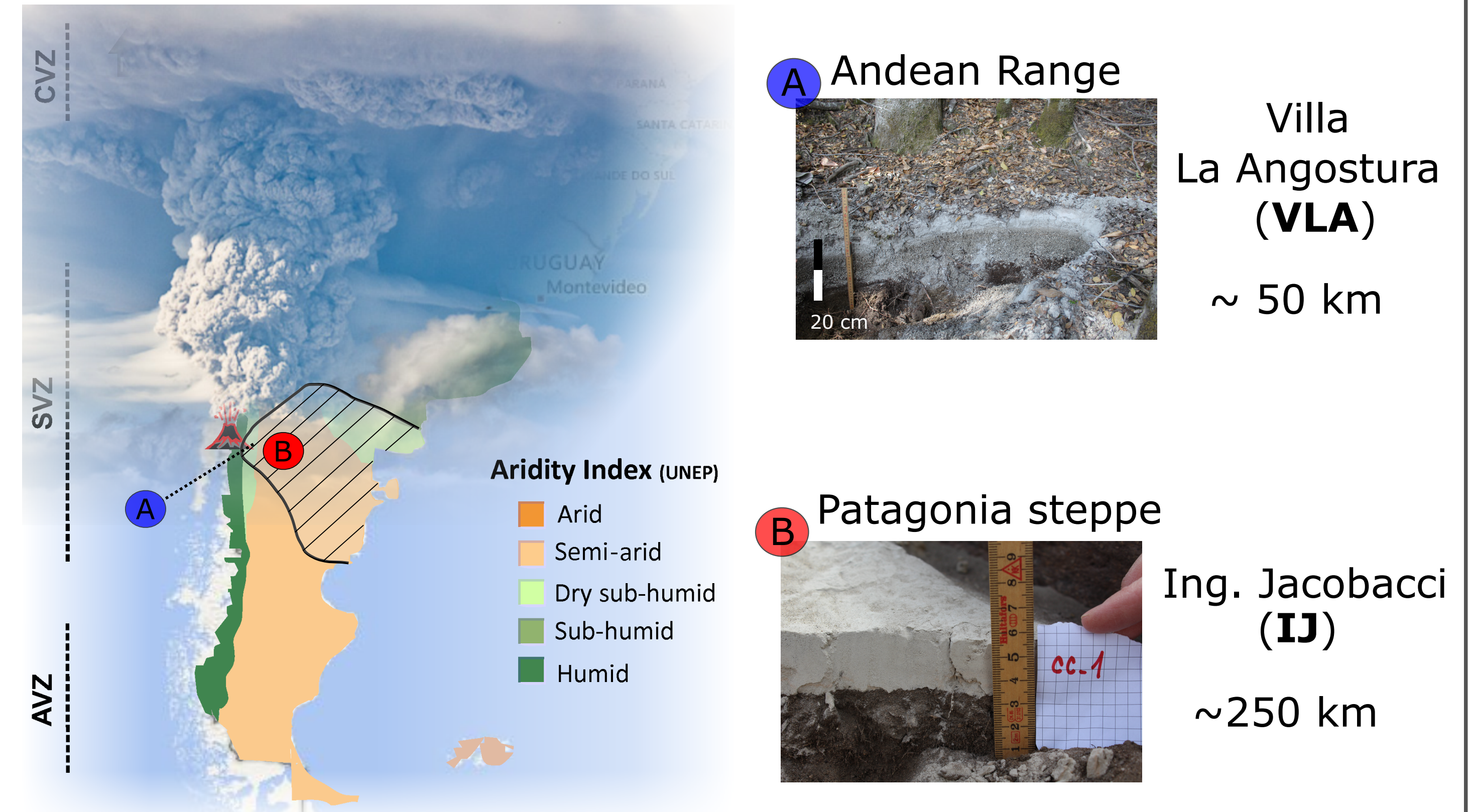


Prone to occur under specific meteorological and environmental conditions

- ↑ Strong winds
- ↓ Lack of vegetation
- ↑ Ash-rich deposits
- ↓ Low rainfall

2011-2012 Cordón Caulle eruption (Chile)

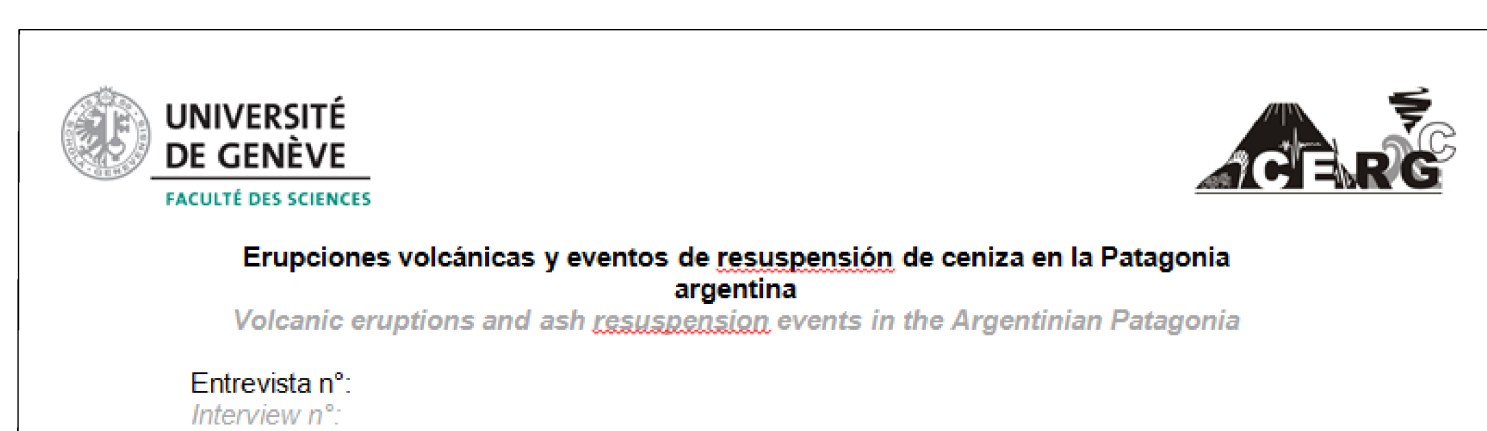
Primary fallout ~ 1 km³ of rhyodacitic tephra



Methodology

Natural and social sciences

- Written questionnaires and in-person interviews



41/43 open and close-ended questions

Target population:

Farming communities

- Meteorological data

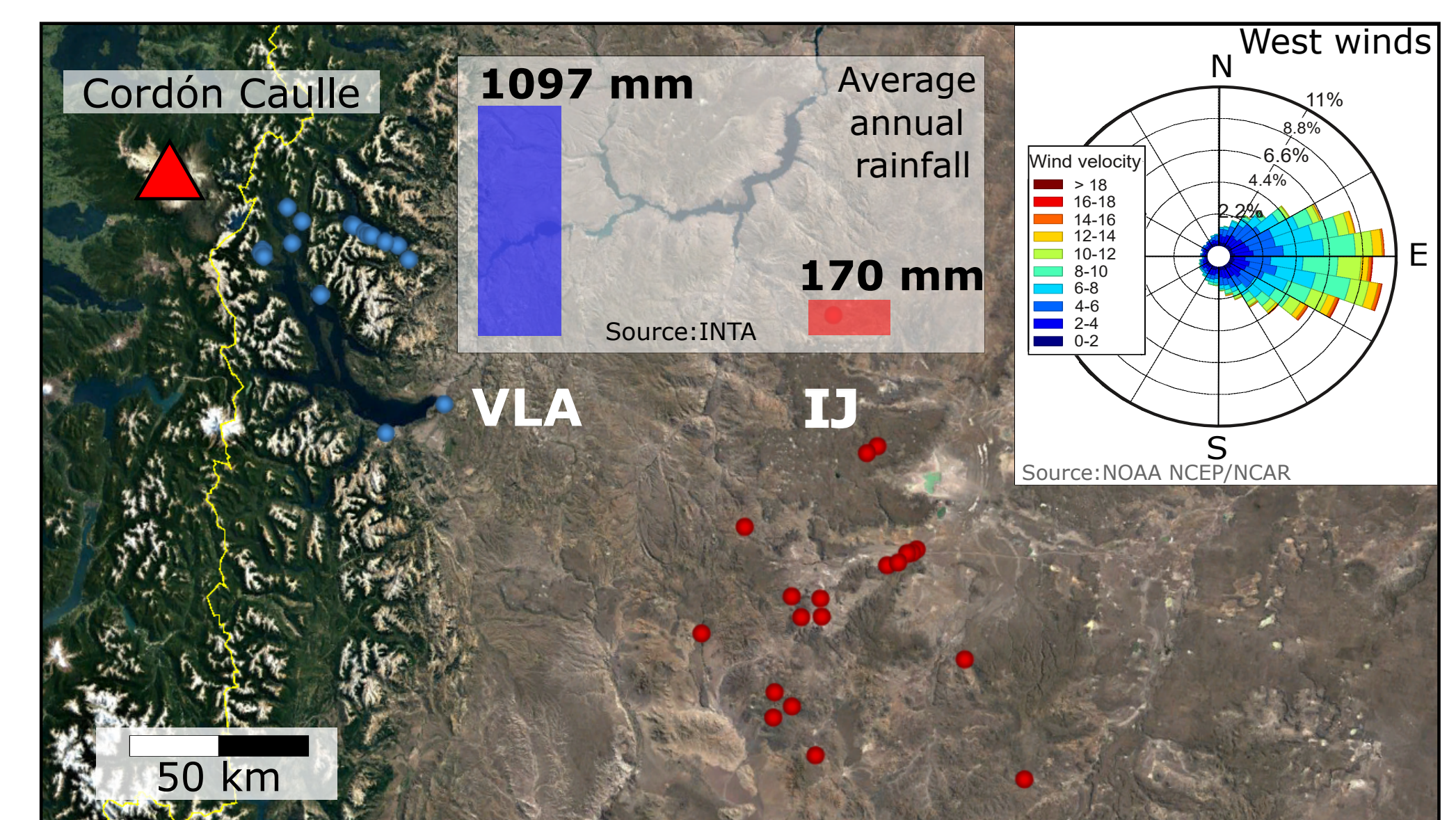
- Field observations



Goal

Characterize the phenomenology and assess the impacts of ash storms in 2 areas showing different environmental and socio-economic conditions

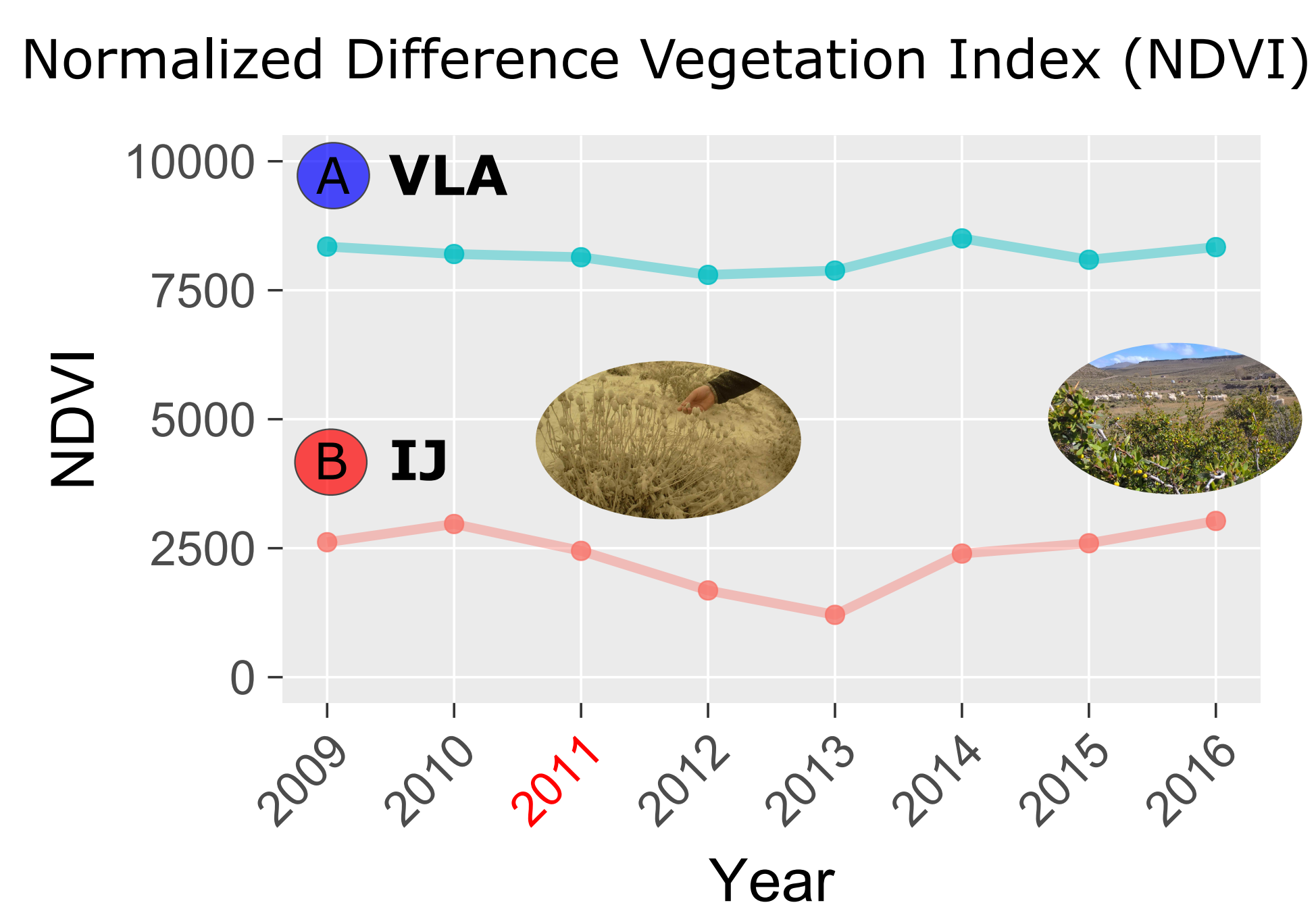
Study area



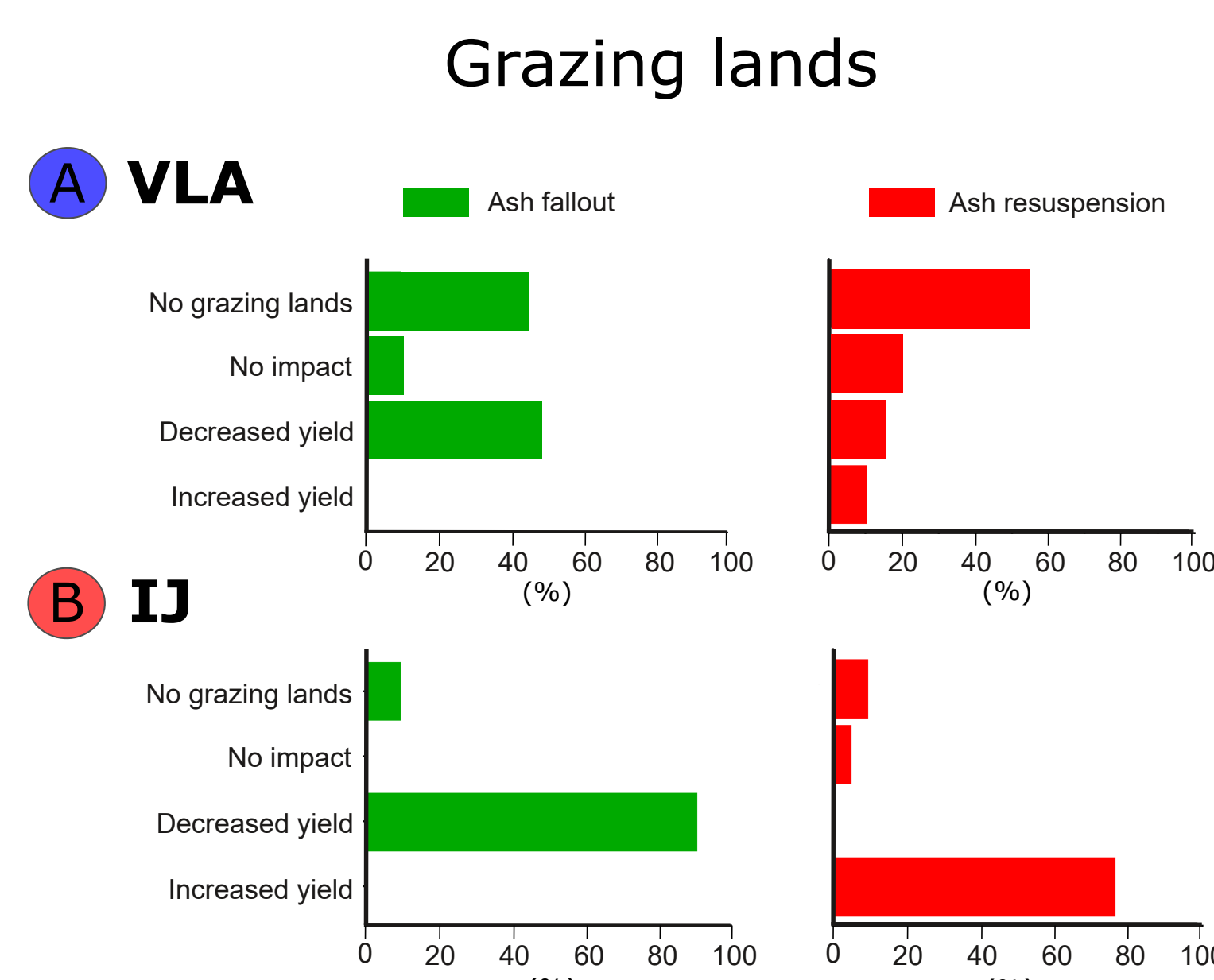
Agricultural activity - percent of cases (%)

	n	Poultry	Cattle	Goats	Equidae	Sheep	Pigs	Grazing lands	Crops
A	21	19	29	14	33	5	0	57	62
B	21	72	52	57	67	88	33	90	24

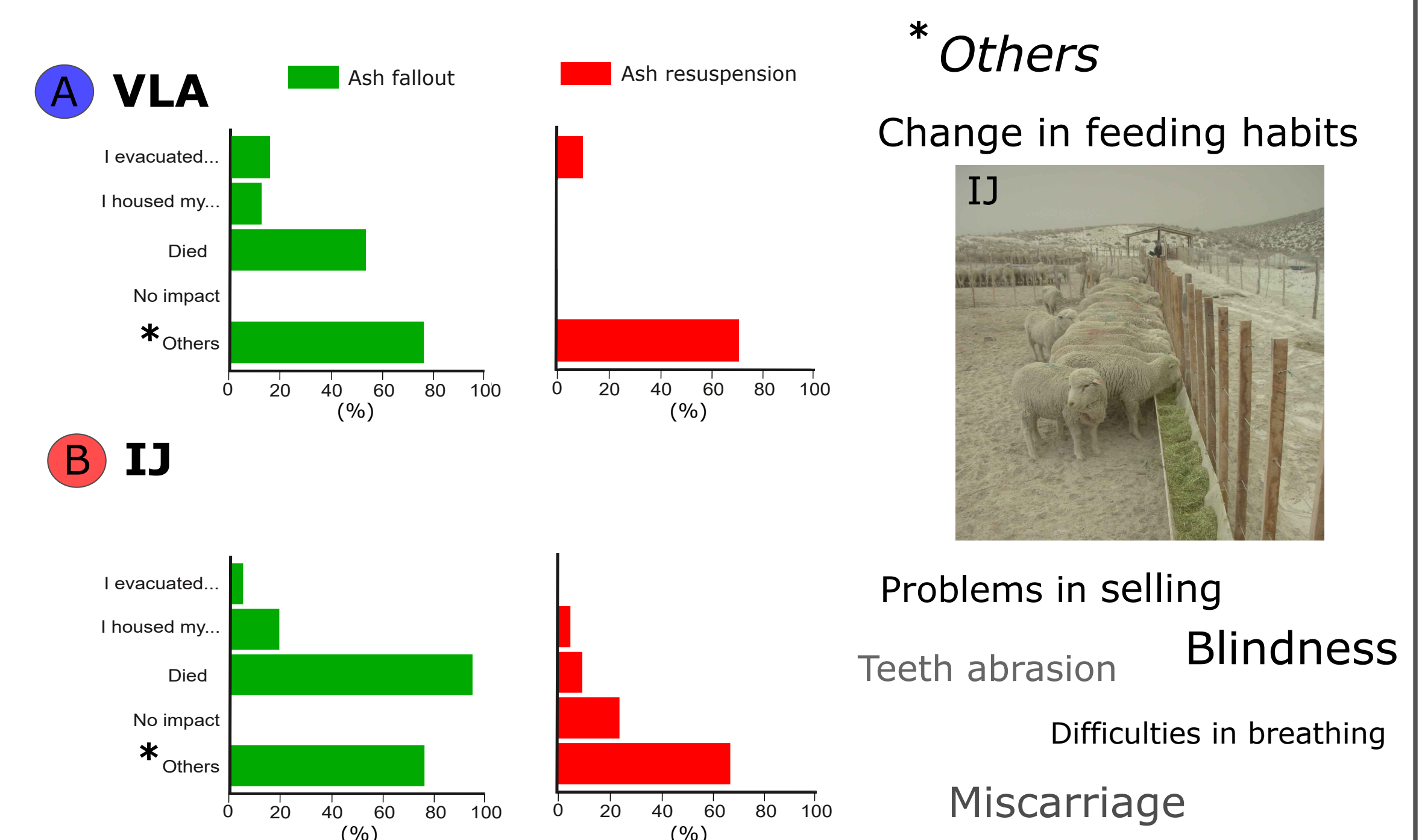
- Impacts on vegetation



Impact assessment

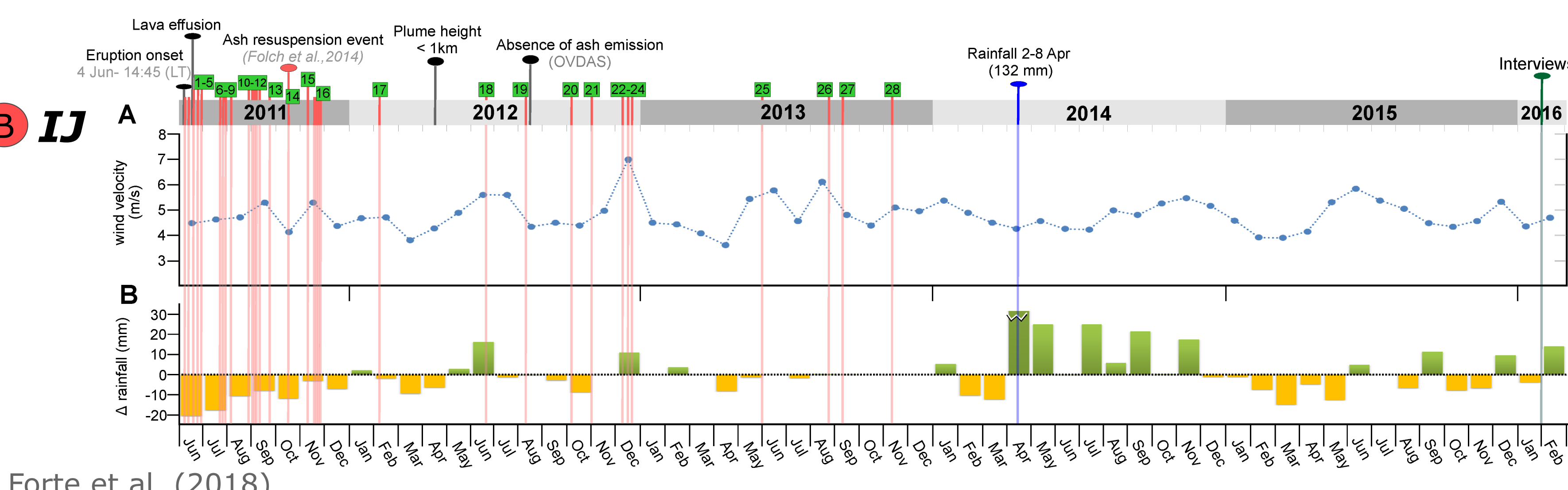


- Impacts on livestock



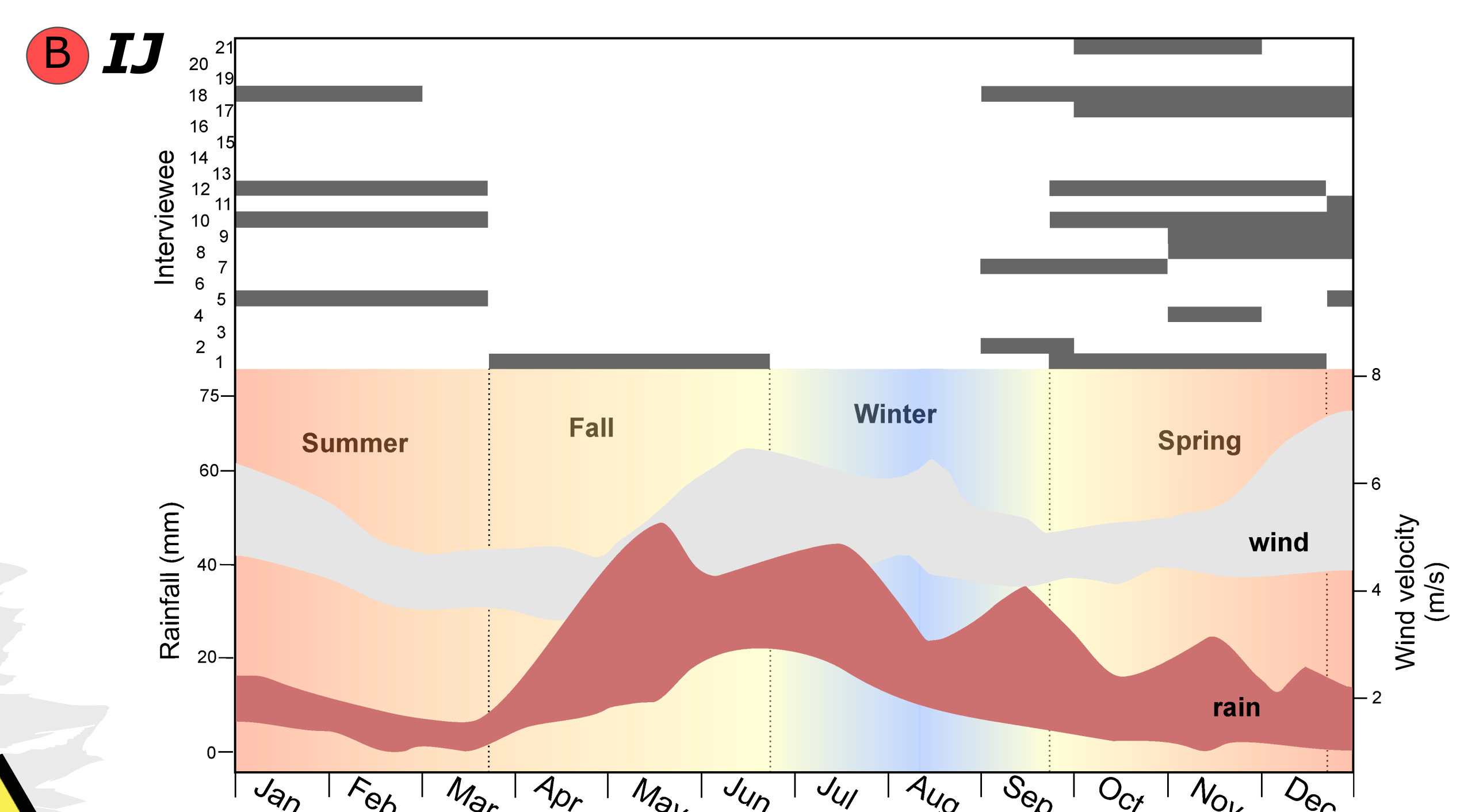
Phenomenology

- Chronology of events: wind, rainfall and resuspension events



- Seasonal variability

"Does the occurrence of resuspension events changes as a function of the season? When are they most common?"



Forte et al. (2018)



change in activity with time



And what about the phenomenology in A VLA?

