FROM THE RAIN FOREST TO THE DESERT

ENGLISH

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This geo touristic route runs along the classic small circuit of the Valles Calchaquies Tucumanos, visiting Tafi del Valle, Amaicha del Valle and Las Ruinas de Quilmes.
The developed offer runs from Tucumán's plain, through the jungle of Yungas along Los Sosa Rive, up to the desertic frame of the Calchaquì River. 366 Km are run with rocks that represent a marine buttom of about 540 million years. These Rocks are strongly deformed and recristalized by the pression and temperature through which they were submited along the geological history, as well as sediments of lakes and rivers of about 60 million years.

DESCRIPTION OF THE ROUTE

It is recomended to position the vehicle's odometer in zero at the Yerba Buena's mast, so as to locate the offered stops more effitiently. The trip begins in Yerba Buena, taking Solano Vera Ave. towards La Rinconada and from there to Villa Nougues. Once concluded the route, it is possible to return to the city by route 9 (from Tapia) or going back over La Sala and San Javier.

1ST STOP
Located xx km from the begining of the trip. A landslide of the hillside generated during the aestival period can be seen here.

2ND STOP
At the watertower located xx km from the previous point, a panoramic view from the north of the mountain range, as well as a the hillside it can be appreciated.

3RD STOP
In Villa Nougues the hostelry and the chapel areas are visited.

4TH STOP
Besides the 341 route, at xxx km, the most ancient rocks can be seen.

5TH STOP
Passing San Javier, at the xxx km of the route, you go towards the waterfall of the Parque Sierra San Javier.

6TH STOP
At the xxx km, at about xx minutes by car, we stop over the La Sala bridge.

7TH STOP
Over the xxx km, in a sloping sharp curve and towards the west, we stop to observe the point of interest.

8TH STOP
At xx km and over the hillside some processes of erosion, typical of the area, can be appreciated.

9TH STOP
xxx km near the monastry and along the river bed of the El Siambòn stream that runs by the road.

10TH STOP
The last point of interest is located besides the road, at xx km towards the east of the 340 and 341 provincial road's intersection.

GeoRoute 2 — San Miguel de Tucumán › Tafí del Valle Quilmes
DIFFICULTY: LOW

CHARACTERISTICS

Longitude: 366 kilometres
By vehicle: Full day trip
Maximum altitude: 3.040 m.a.s.l. at "El Infiernillo"

Recommendations:
· Classic touristic circuit in Tucuman's territory.
· Runs along the routes 38, 307 and the nacional route 40.
· Fuel is available in Acheral, Tafi del Valle and Amaicha del Valle.
· Vast gastronomic offers.
· Good alternative to sleep over in Valles Calchaquies and return to Tucumàn by circuit number 2.

GUIDE FOR ROCK IDENTIFICATION IN THE FIELD

Sandstones
Sedimentary rock, formed by the acumulation of grains, mainly of Quartz. This acumulation could have been generated as a result of a fluvial or eolic transport.

Schists
Metamorphic Rocks generated by a sedimentary rock that has varied its mineralogic composition by a process named metamorphism that involves factors such as pression and temperature.

Granites
Igneous Rocks that have been formed through the cristalization of magmatic material, mainly composed by minerals such as Quartz, Felfespars and Micas.

Pegmatites
Rocks formed by the cristalization of minerals injected after the formation of the host g rock.

GENERAL ADVICES/ WARNINGS

Do not throw litter.

Bring a bag with you so as to place the litter in it and later on leave it in the city or a nearby town.

Respect the flora, fauna and the geological resources of the circuit.

As an alternative it is adviced to spend a night in Cafayate or Tolombon, returning to Tucumán by the Tolombón-San Pedro de Colalao circuit.

Check on your vehicle condition. Circuit with strong bangings and curves.

Make sure to bring a first aid kit.

If you lit up a fire, do it in authorized areas and latter on make sure that it is absolutely extinguished.

GeoRoute 2 — San Miguel de Tucumán › Tafí del Valle Quilmes
DIFFICULTY: LOW

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GeoRoute 2

San Miguel de Tucumán › Tafí del Valle Quilmes

DIFFICULTY: **LOW**

Scan the code with your cell phone to see the circuits in the web:

STOP 1

Erratic blocks placed at the margins of the access road to the ganging station of the river Los Sosas. These blocks were deposited by the river bed in previous stages when they flew in levels located above the nowadays road. Just as it is appreciated, the volumen must have been important to movilize blocks of more than 5 tons.

STOP 2

The sum of the rock characteristics (fracturement, fold, type of rock, etc.) and the climatic factor make the landslide to be frequent on this road and they are generally associated to storm episodes, mainly in the aestival time.

STOP 3

Los Sosas river constitutes the natural drainage of the Tafi Valley. The river bed flows through granitic and metamorphic rocks to finally add up to the Rio Salì basin in the Tucuman's evenness.

STOP 4

A "Plastic" rock
Once reached cartain levels of temperaturas and pressure, the minerals that constitute the different rocks fuse and mobilize themselves, giving rise to shapes and structures that have nothing to do with the original rock.

STOP 5

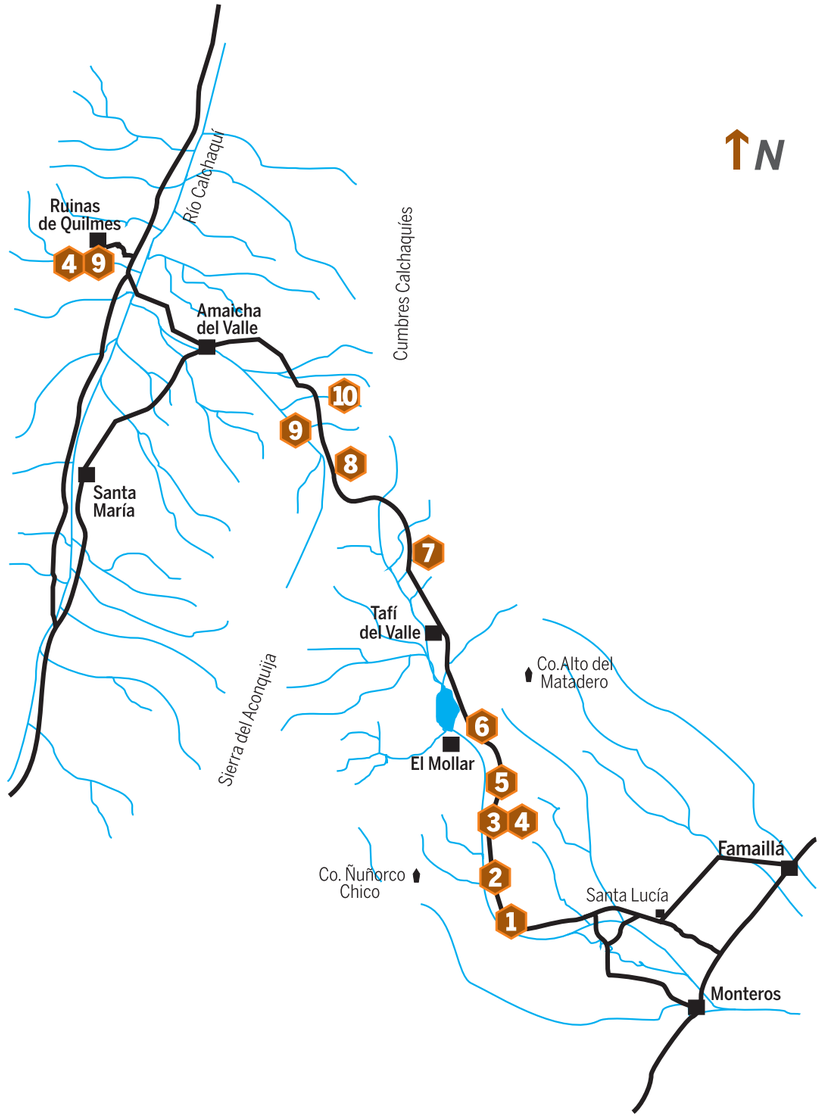
An efficient job
The river bed of Los Sosa river transport sand particles in suspension, which have carved cannels in the rocks of the fuvial bed. This job, which is unnoticed by the observer is constant and it has been taking place previously to the existance of men on Earth.

STOP 6

A very soft granitic rock
Since the solidification of the magma that gives place to the formation of a granitic rock, numerours processes take place until this is expossed to the surface.
At the curve of "Fin del Mundo", the granite is found entirely altered and modified in its mineralogical structure, to the point of presenting sand consistance. This situation generates very complex geotectonic problems at the curve, where a tunnel has been projected as the only possible measurement in short terms to overcome this situation.

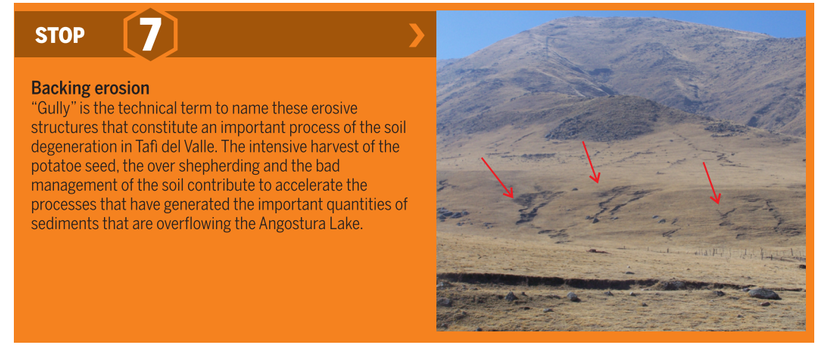
The road "falls down"
As a consequence of the previously described situation, all the "Fin del Mundo" sector presents a highlighted plasticity, where it is frequent to observe the falling of the road due to the different movements of some sectors of it.

Shepherding register
Structures generated by shepherding, which are named "pies-de-bache" (pie de vaca). These ones modify the estructure of the layer, rich in superficial organic substance, facilitating the action of the erosive processes.



GEOLOGICAL TIME CHART

PRECAMBRIAN	PALEOZOIC						MESOZOIC			CENOZOIC		
	Cambrian	Ordovician	Silurian	Devonian	Carbonif.	Permian	Triassic	Jurassic	Cretaceous	Paleogene	Neogene	Cuaternary
STOPS 1 4	There are no rocks of this age in this route						There are no rocks of this age in this route			- Erosion and formation of the actual shape of the area. - Sedimentation of multi-colored rocks in the Calchaquí Valley - Rise of the Andes		
Age of rocks forming the main cores of Tucumán ranges.	542 millions years ago						251 millions years ago			65,5 millions years ago		



STOP 7

Backing erosion
"Gully" is the technical term to name these erosive structures that constitute an important process of the soil degeneration in Tafi del Valle. The intensive harvest of the potatoe seed, the over shepherding and the bad management of the soil contribute to accelerate the processes that have generated the important quantities of sediments that are overflowing the Angostura Lake.

STOP 8

"Injected Rock"
The rocks of the Calchaquies and Aconquija mountain ranges were submited to strong levels of pressure and temperature that conditioned the "injection" of melted material in the shape of vains and strips of different colours.

STOP 9

Traditional Geological Resources
At this stop it can be appreciated how men takes advantage of what nature provides for their daily activities in the construction of houses and temples, developing in this way their lives in tight bond with the environment.

PARADA 10

Fossils Lakes and Rivers
The sedimentary sequences located to both margins of the road that join the Abra del Infiernillo with the locality of Amaicha del Valle constitute sediments of rivers of great volume and lakes that developed in Valles Calchaquies about 50 millon years. Many of these stratums have fossils that are protected by the National law 25743/3 (Protection of the Archeological and Paleontological Patrimony).

The injected nucleus shows a peculiar mineralogy from its margins to the centre. Technically they are named "Pegmatitic dikes" and they are the source of numerous econonomically expliotable minerals (semiprecious and industrial. E.g. Turmaline and Mica.