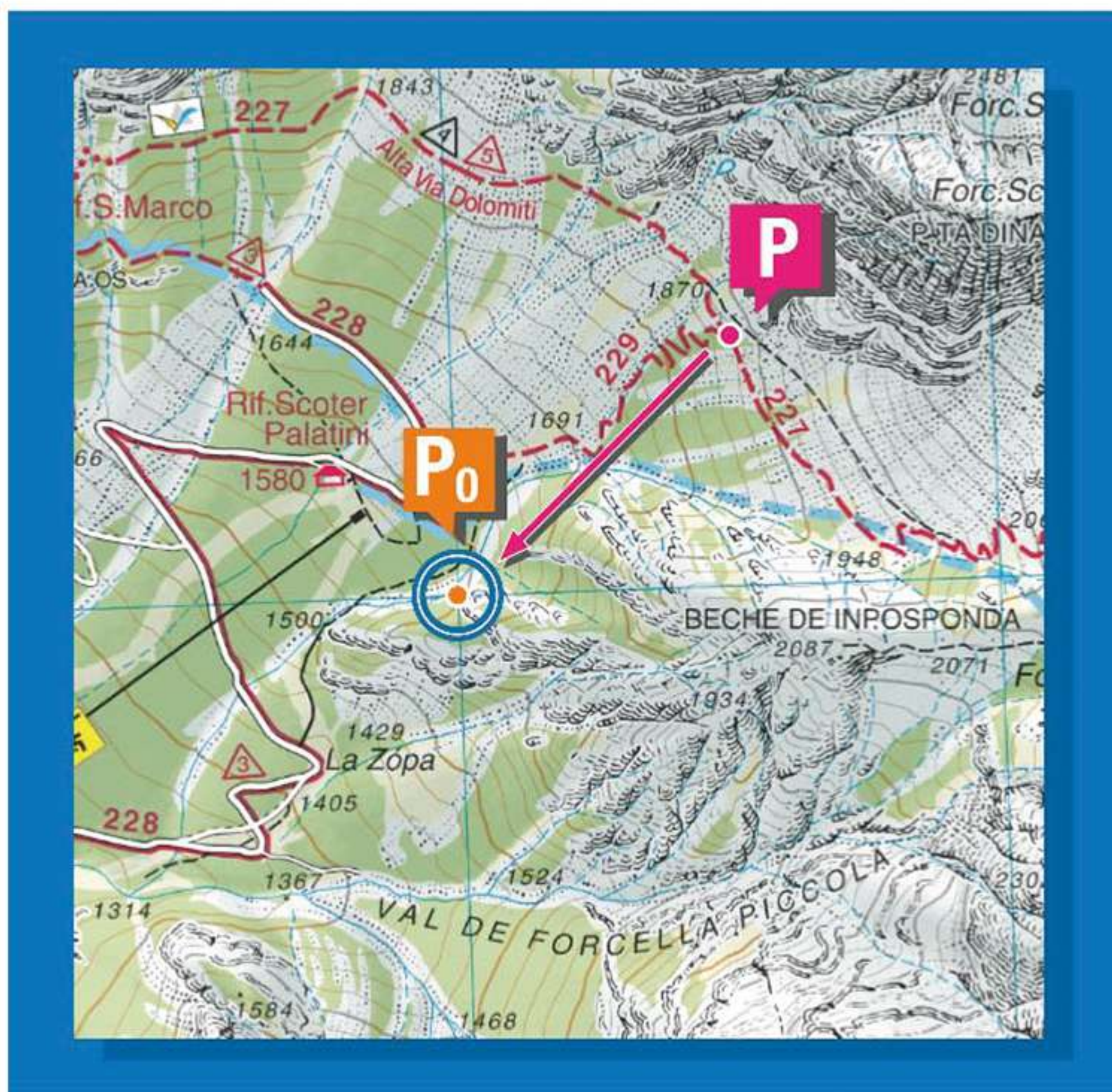


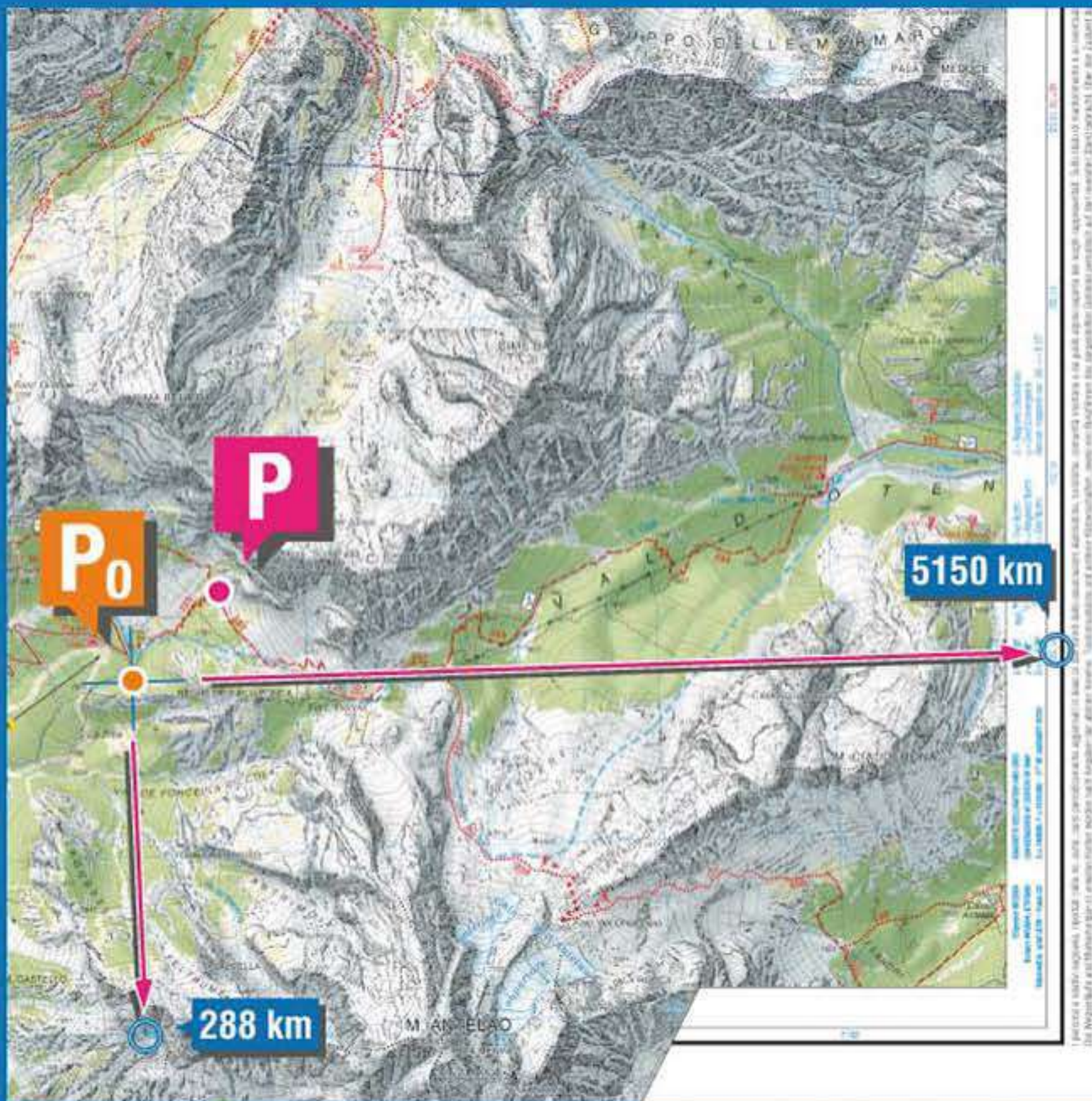
USO DEL COORDINATOMETRO

Determinazione delle coordinate UTM (WGS84)
di un punto P sulla carta



1

Individuare in carta
il punto P, del quale
si vogliono determinare
le coordinate, e il punto
P0, vertice in basso
a sinistra del quadrato
del reticolo in cui insiste
il punto P.



2

Leggere sul margine della carta le coordinate chilometriche del punto P0:

$$E(x) = 288,000 \text{ km}$$

$$N(y) = 5150,000 \text{ km}$$



3

Posizionare il coordinatometro (stampato sulla busta trasparente della carta) con la base sovrapposta alla linea di base del quadrato del reticolo in cui insiste il punto P e farlo scorrere verso sinistra, mantenendolo allineato, fino a che la linea verticale del coordinatometro tocca il punto del quale si vogliono determinare le coordinate.



4

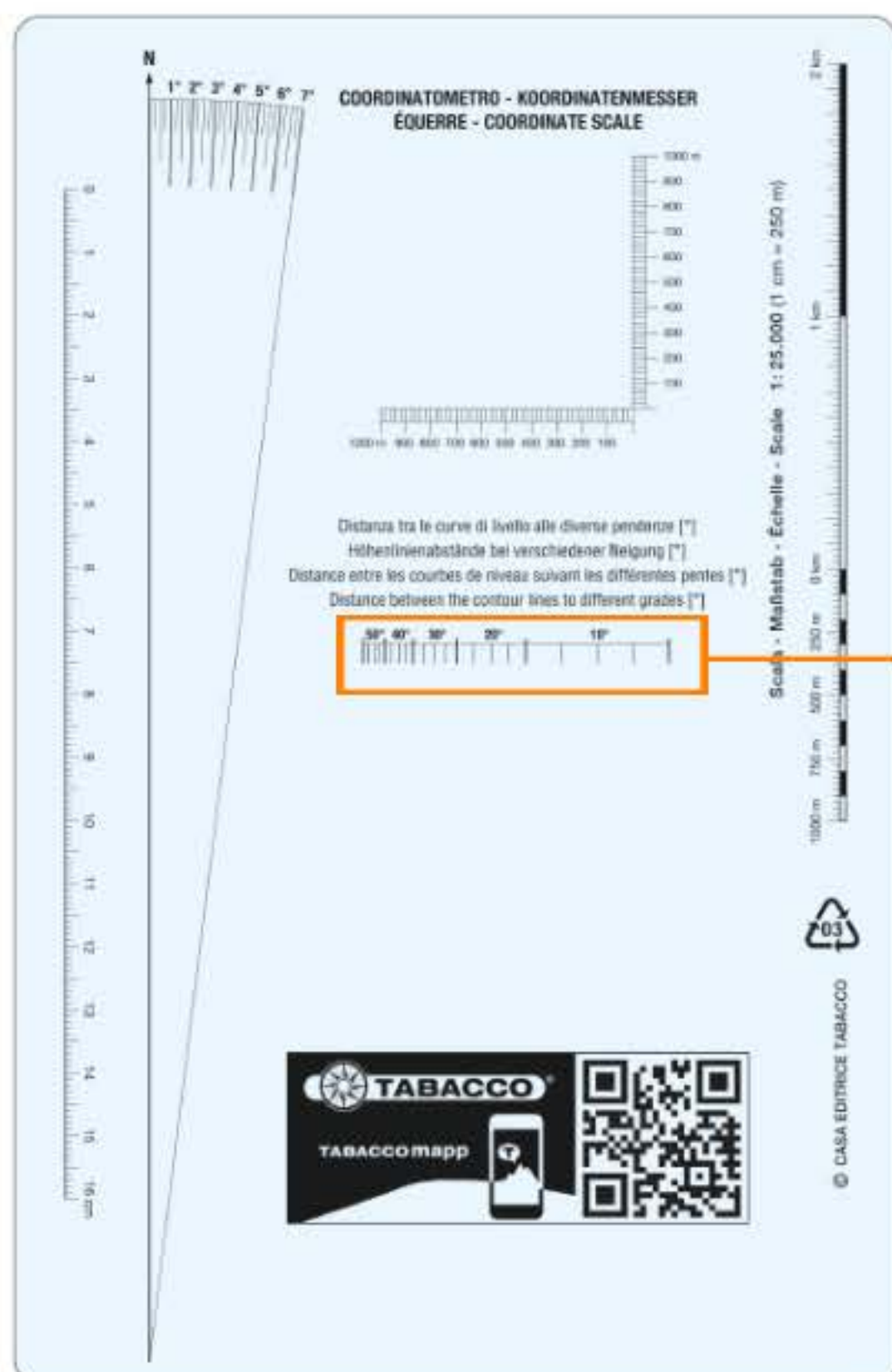
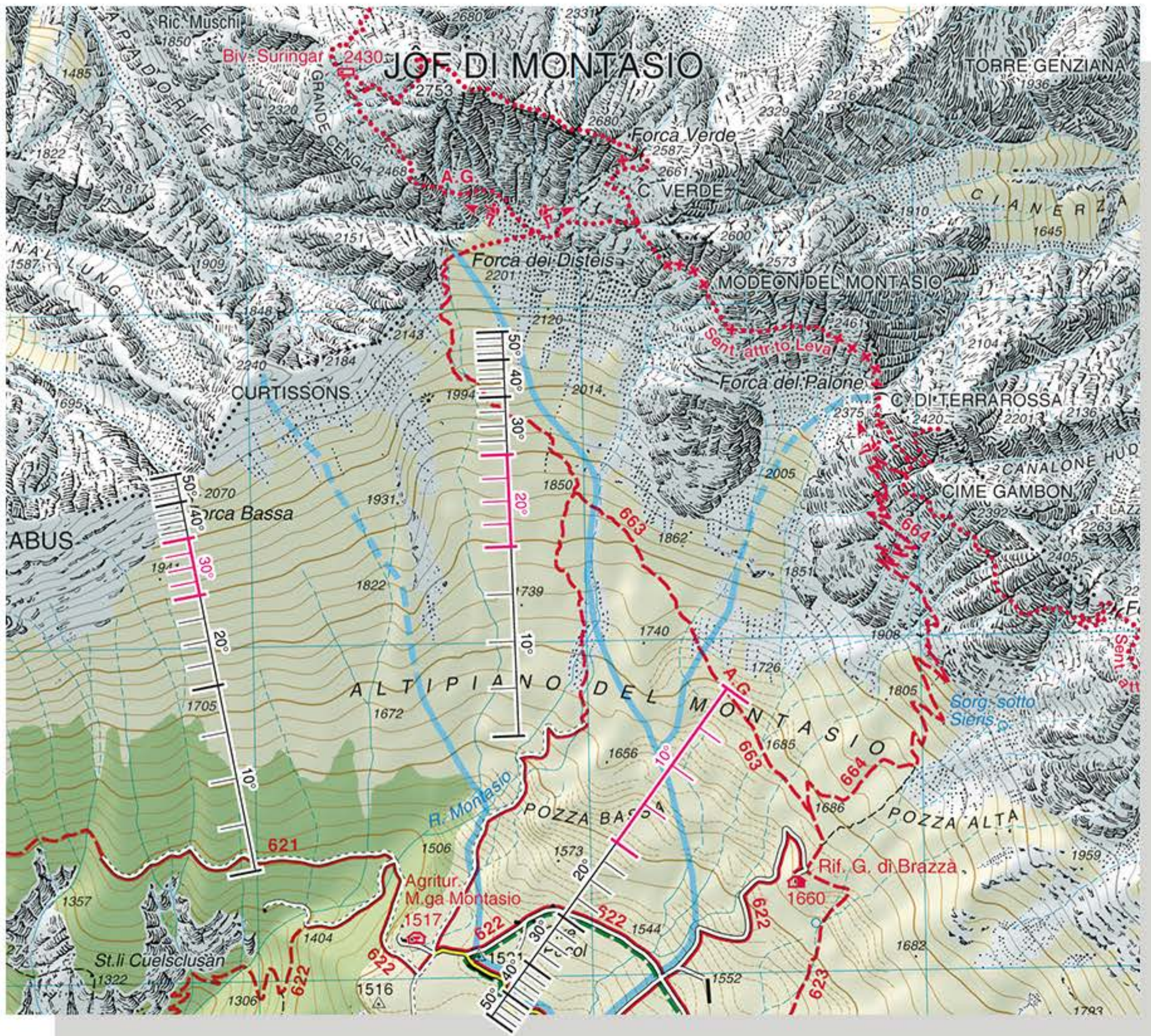
Misurare i valori in metri delle coordinate metriche misurate con il coordinatometro.

Le coordinate UTM del punto P sono quindi:

$$(E) x = 288000 \text{ m} + 680 \text{ m} \\ = 288680 \text{ m}$$

$$(N) y = 5150000 \text{ m} + 490 \text{ m} \\ = 5150490 \text{ m}$$

STIMA DELL'ACCLIVITÀ DEL TERRENO



STIMA DELL'ACCLIVITÀ DEL TERRENO

Sulla carta topografica, sovrapporre, ortogonalmente alle curve di livello, la scala stampata sulla busta, in corrispondenza del punto nei dintorni del quale si vuole valutare la pendenza.

1

2

Stimare con la scala il range dell'intervallo fra due curve di livello principali contigue (100 m) e leggere il corrispondente valore della pendenza in gradi.

INFORMAZIONI RIPORTATE A MARGINE CARTA

Sistema Cartografico

Ellissoide: WGS84

Sistema di riferimento: WGS84, ETRS 89

Reticolo chilometrico: UTM

Fusi UTM: 32, 33

Declinazione magnetica e convergenza del reticolo al centro della carta

N = Nord geografico

Nm = Nord magnetico

Ng = Nord reticolo

δ (delta) = declinazione magnetica

γ (gamma) = convergenza reticolo

$\Delta\delta$ = variazione annuale della
declinazione magnetica

ORIENTAMENTO DELLA CARTA

A margine carta sono riportati i valori della declinazione magnetica al centro della carta e l'angolo tra il Nord magnetico, il Nord del reticolo e il Nord Geografico.

Il valore dell'angolo tra il Nord del reticolo e il Nord magnetico permette di orientare con precisione la carta con la bussola e di effettuare con semplicità i calcoli di rotta. I valori degli angoli sono riportati in gradi sessa-decimali per semplificare i calcoli.

Ellissoide WGS84

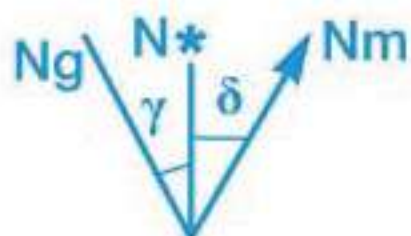
Sistema di riferimento WGS84, ETRS89

Reticolo chilometrico UTM - Fuso 33

DECLINAZIONE MAGNETICA E CONVERGENZA
DEL RETICOLO AL CENTRO CARTA

X = 850000, Y = 5154000 (1° GENNAIO 2017)

$\delta = +3,37^\circ$
 $\gamma = -1,05^\circ$
 $\delta - \gamma = 4,42^\circ$



N = Nord Geografico
Nm = Nord Magnetico
Ng = Nord Reticolo

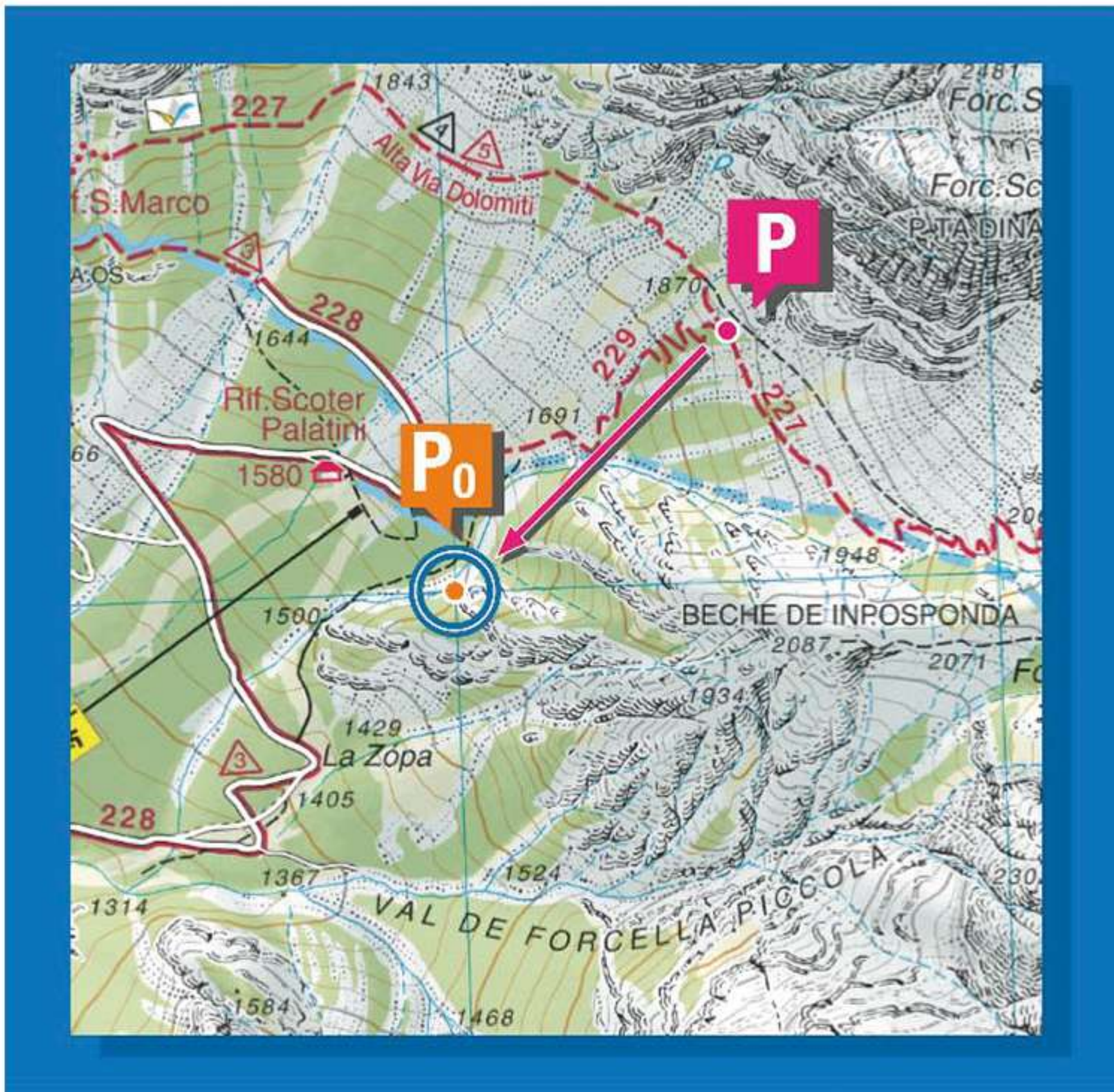
δ = Declinazione magnetica
 γ = Convergenza reticolo
 $\Delta\delta$ annuale = + 0.12°

TOPOGRAPHIC MAP FOR HIKERS

AT A SCALE 25.000

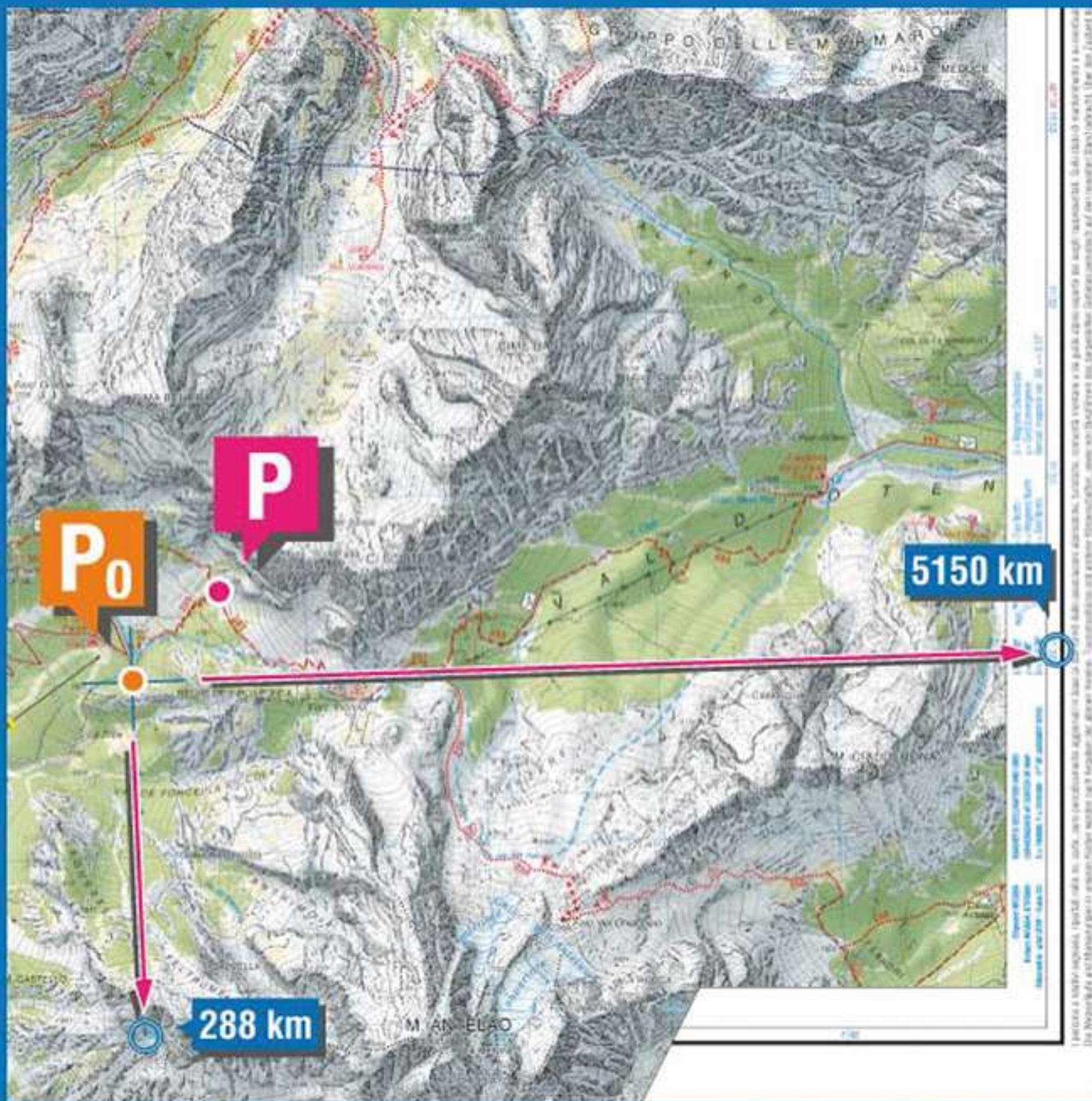
USE OF THE GRID REFERENCE TOOL

Determining the UTM coordinates (WGS84)
of a point on the map



1

On the map,
identify point P, for which
you wish to determine
the coordinates, and point
P0, the lower left corner
of the square of the grid
in which point P
is located.



2

Look at the edge
of the map to read
the kilometre coordinates
of point P0:

$$E(x) = 288,000 \text{ km}$$

$$N(y) = 5150,000 \text{ km}$$



3

Position the grid reference tool (printed on the transparent sleeve of the map) overlaying the base line on the lower line of the grid square in which point P is located, and slide it to the left, keeping it aligned with the grid, until the vertical line of the grid reference tool is touching the point for which you wish to determine the coordinates.



4

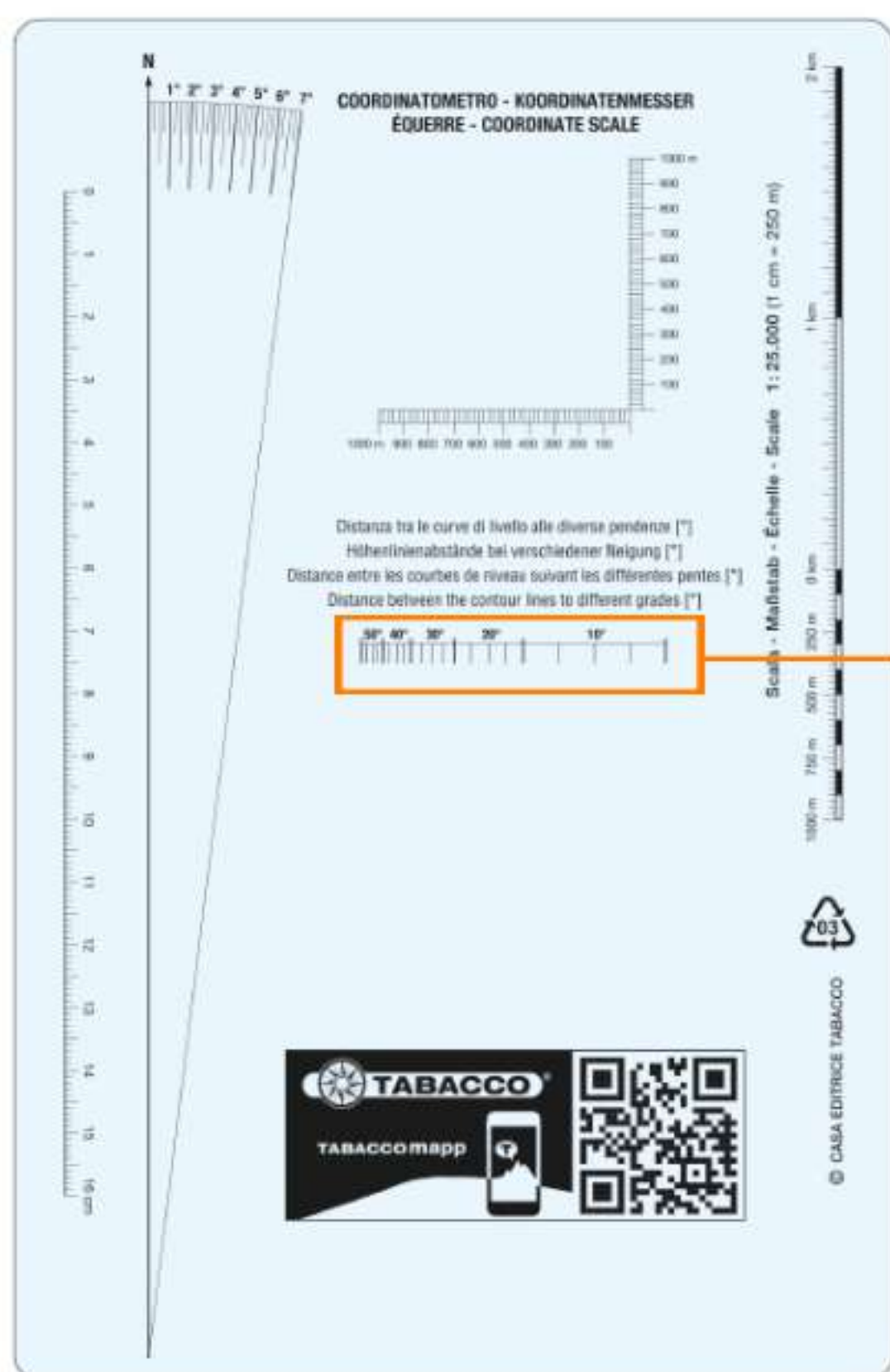
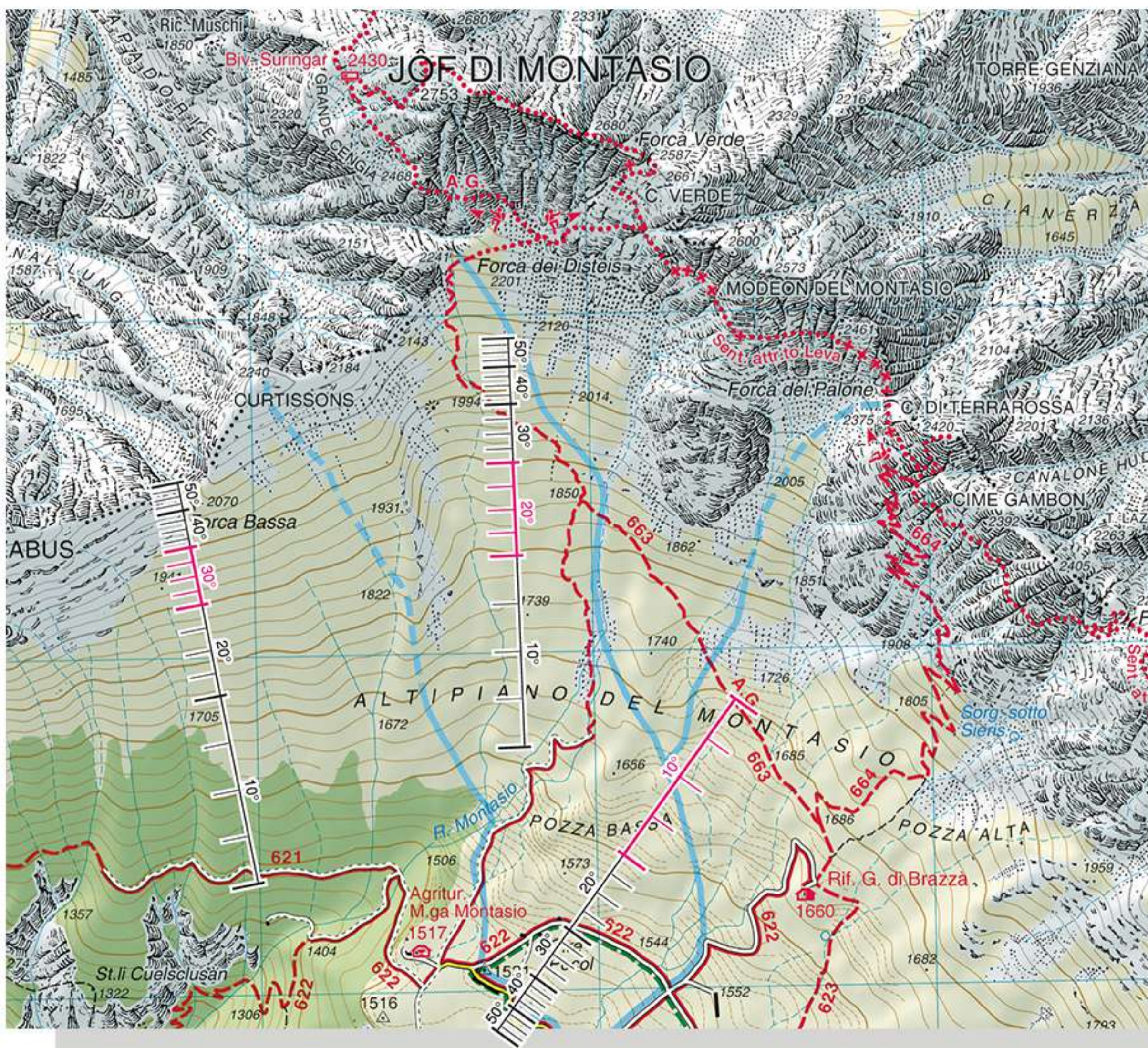
Measure the values of the coordinates E (x) and N (y) of point P in metres relative to point P0 (NB: with the grid reference tool it is possible to assess the distance with an error margin of around 10-20 m).

The UTM coordinates of point P are thus:

$$(E) x = 288000 \text{ m} + 680 \text{ m} \\ = 288680 \text{ m}$$

$$(N) y = 5150000 \text{ m} + 490 \text{ m} \\ = 5150490 \text{ m}$$

ESTIMATING THE GRADIENT OF THE LAND



Envelope

ESTIMATING THE GRADIENT OF THE LAND

Lay the sleeve on the topographic map, so that the printed scale is at right angles to the contour lines, over the point around which you wish to estimate the gradient.

1

2

Use the scale to estimate the range of the interval between the two adjacent primary contour lines (100 m) and read the corresponding value of the gradient in degrees.

INFORMATION SUPPLIED ON THE EDGE OF THE MAP

Cartographic Method

Ellipsoid: WGS84

Geodetic datum: WGS84, ETRS 89

Kilometric grid: UTM

Fusi UTM: 32, 33

Magnetic declination and grid convergence at center of map

N = true north

Nm = magnetic north

Ng = grid north

δ (delta) = magnetic declination

γ (gamma) = grid convergence

$\Delta\delta$ = annual variation of magnetic
declination

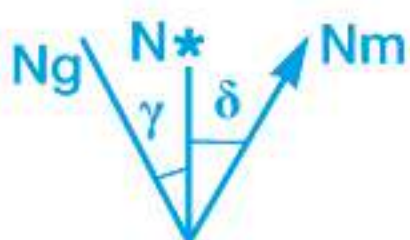
ORIENTATION OF THE MAP

The edge of the map shows the magnetic declination at the centre of the map, and the angle between magnetic north, grid north and true north. The value of the angle between grid north and magnetic north enables the user to orientate the map precisely using a compass, and to work out routes with greater ease. The values of the angles are given in decimal degrees to make calculations easier.

Ellipsoid WGS84
Datum WGS84, ETRS89
Kilometric grid UTM - Fuse 33

MAGNETIC DECLINATION AND GRID
CONVERGENCE AT CENTER OF MAP
X = 850000, Y = 5154000 (1st OF JANUARY 2017)

$\delta = +3,37^\circ$
 $\gamma = -1,05^\circ$
 $\delta - \gamma = 4,42^\circ$

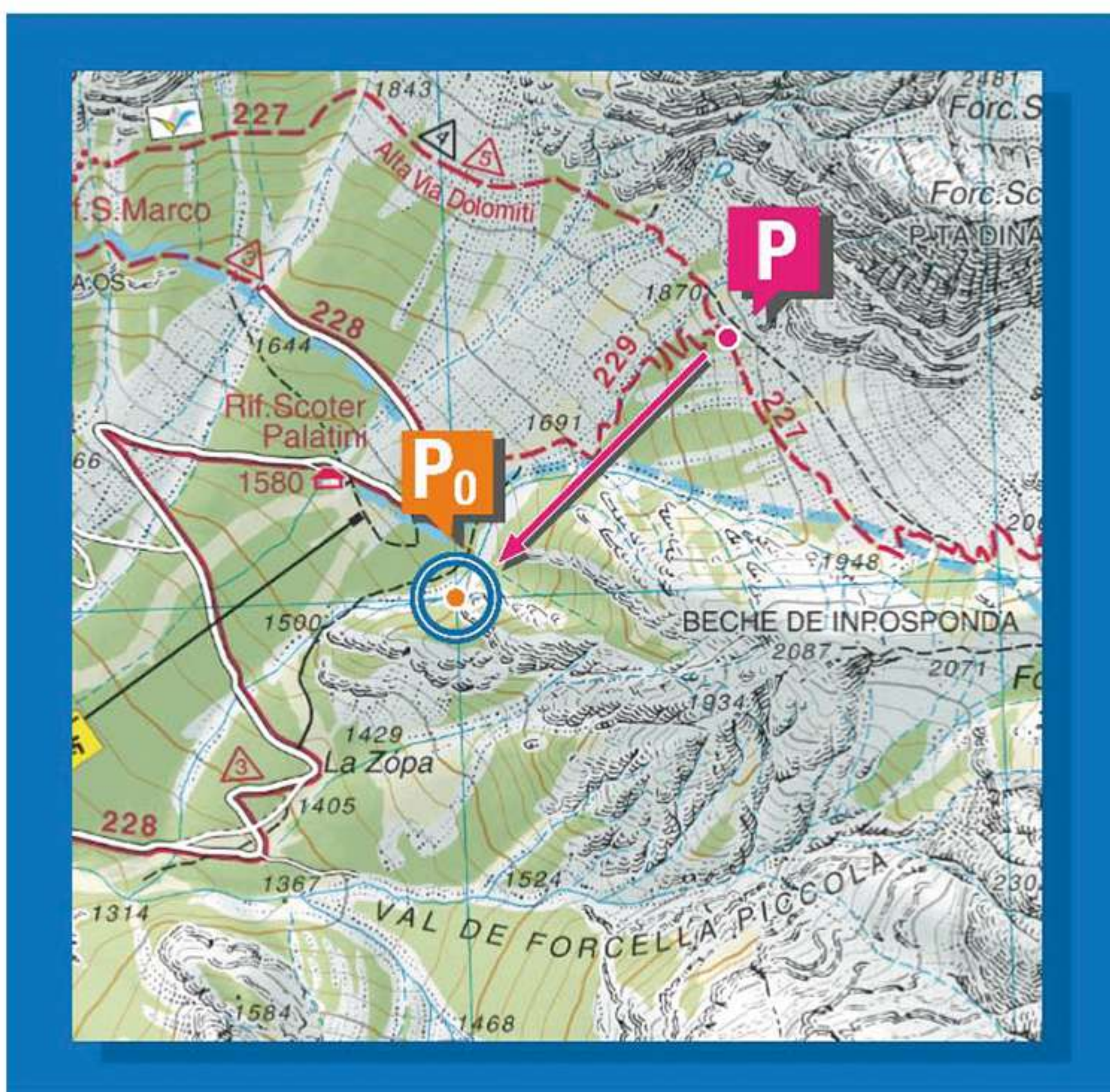


N = True North
Nm = Magnetic North
Ng = Grid North

δ = Magnetic Declination
 γ = Grid Convergence
Annual magnetic var. $\Delta\delta = + 0,12^\circ$

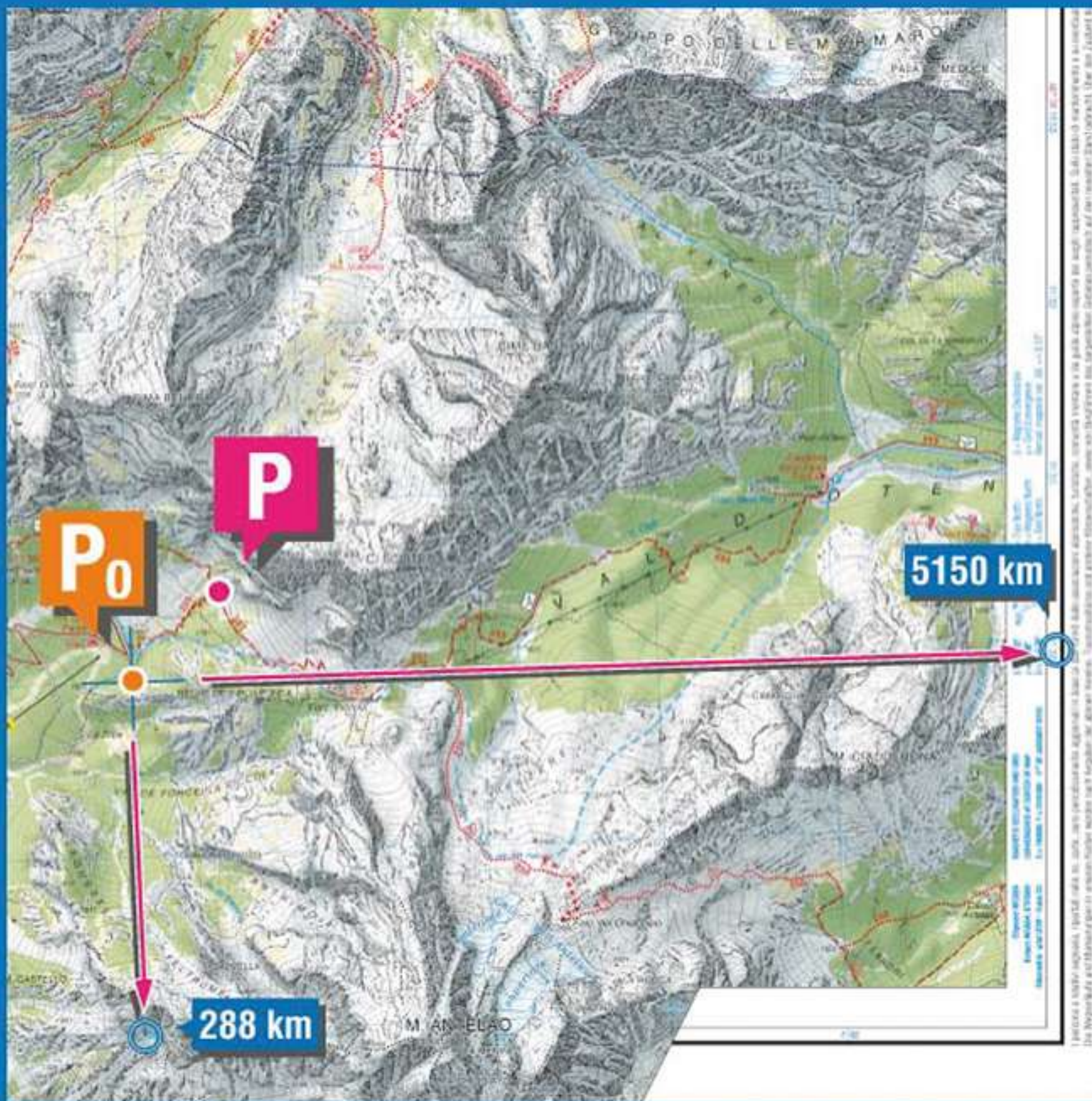
GEBRAUCH DES KOORDINATENMESSERS

**Bestimmung der UTM-Koordinaten (WGS84)
eines Punktes P auf der Karte**



1

Punkt P auf der Karte ermitteln,
von dem man die Koordinaten
bestimmen möchte,
und den Punkt P0,
linker unterer Scheitelpunkt
im Gitterquadrat,
in dem sich der Punkt P befindet.

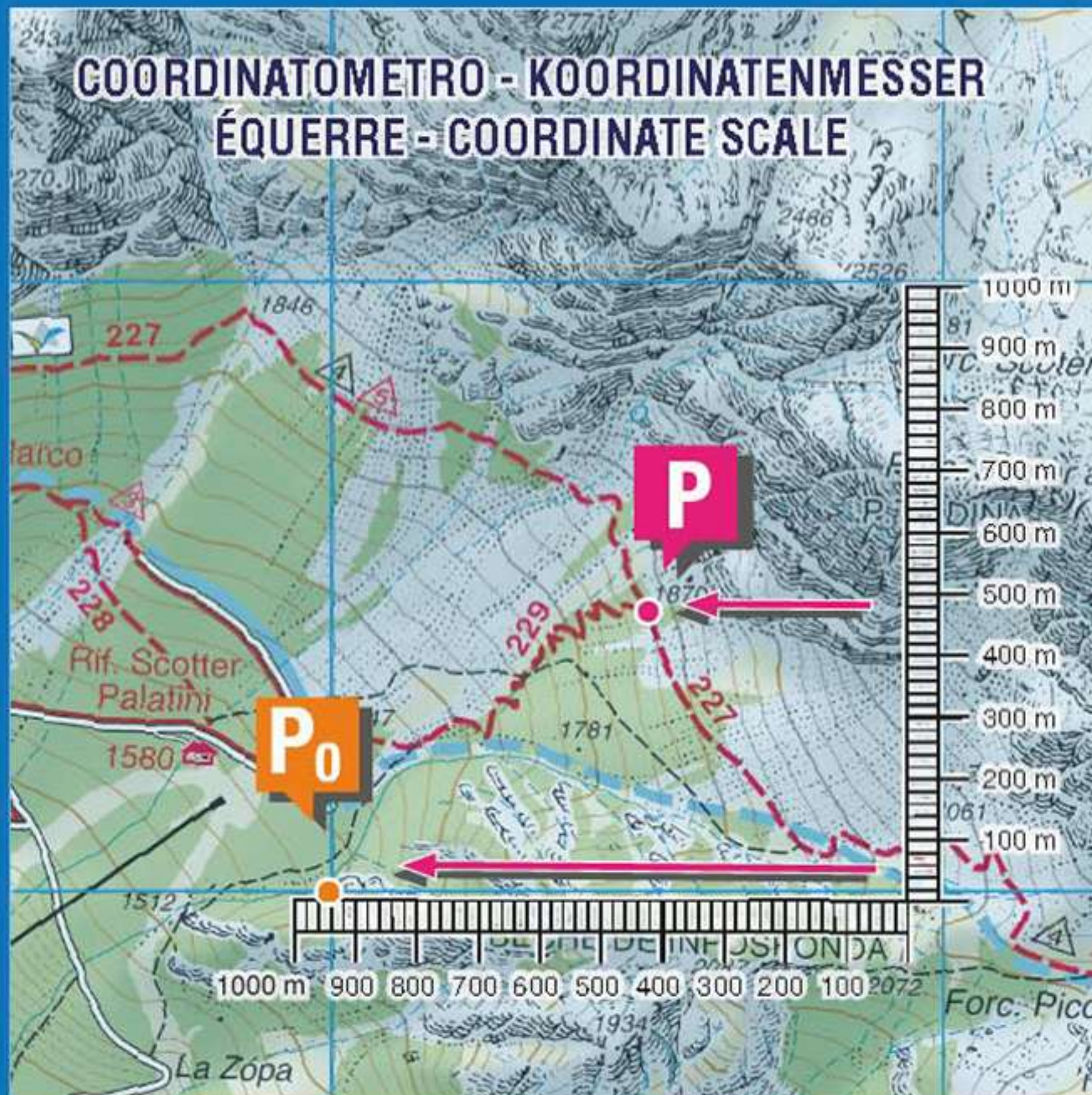


2

Am Kartenrand
die kilometrischen
Koordinaten der Karte
von Punkt P0 ablesen:

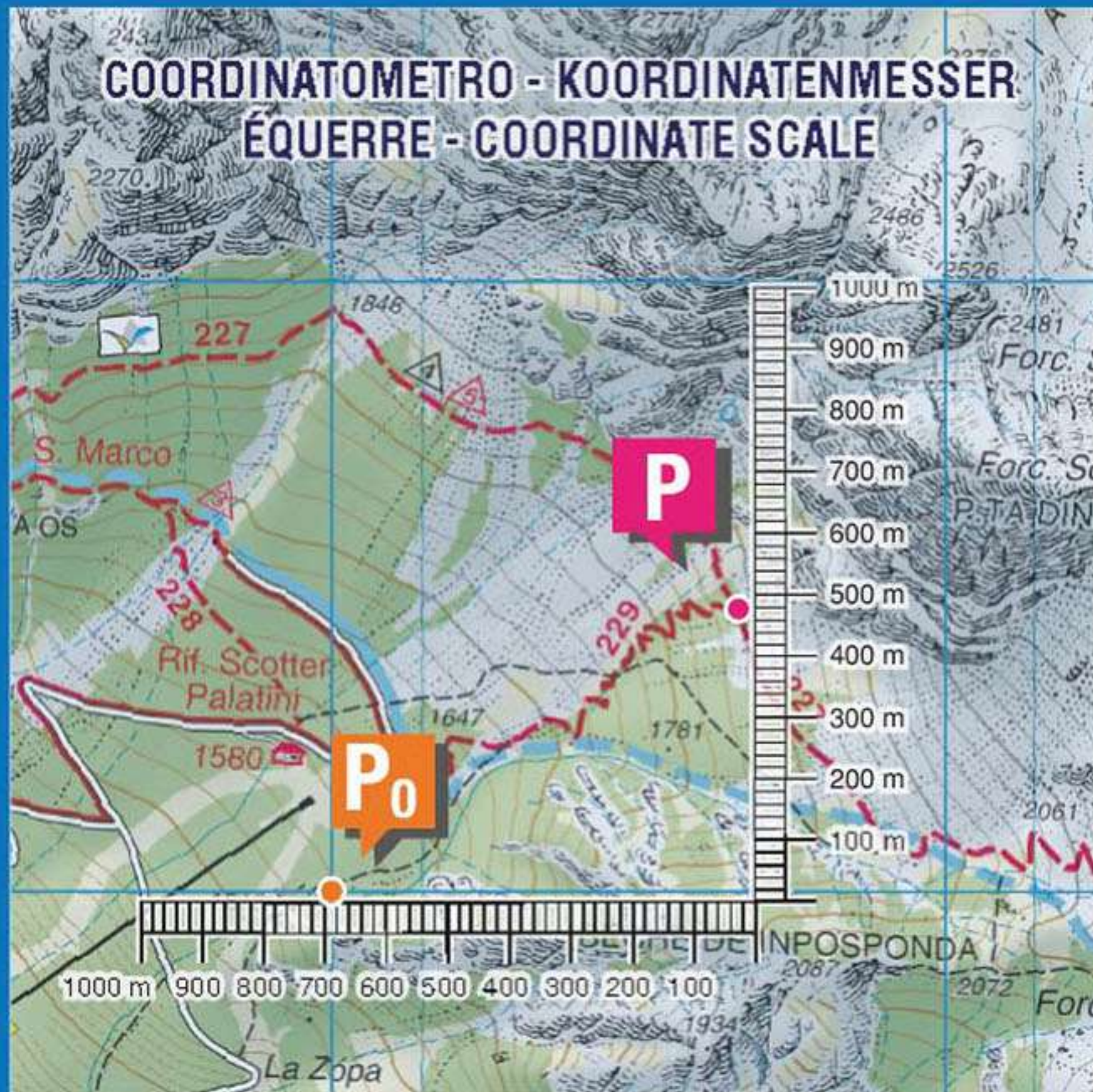
$$E(x) = 288,000 \text{ km}$$

$$N(y) = 5150,000 \text{ km}$$



3

Koordinatenmesser
 (auf der transparenten
 Kartenhülle aufgedruckt) mit
 der Grundlinie
 auf der Grundlinie des
 Gitterquadrates auflegen, in
 dem sich der Punkt P befindet,
 und nach links verschieben
 ohne die Ausrichtung zu
 verändern, bis die senkrechte
 Linie des Koordinatenmessers
 den Punkt berührt,
 dessen Koordinaten wir
 bestimmen wollen.



4

Die Werte in Metern der
 Koordinaten E (x) und N (y) von
 P im Vergleich mit Punkt P0
 messen

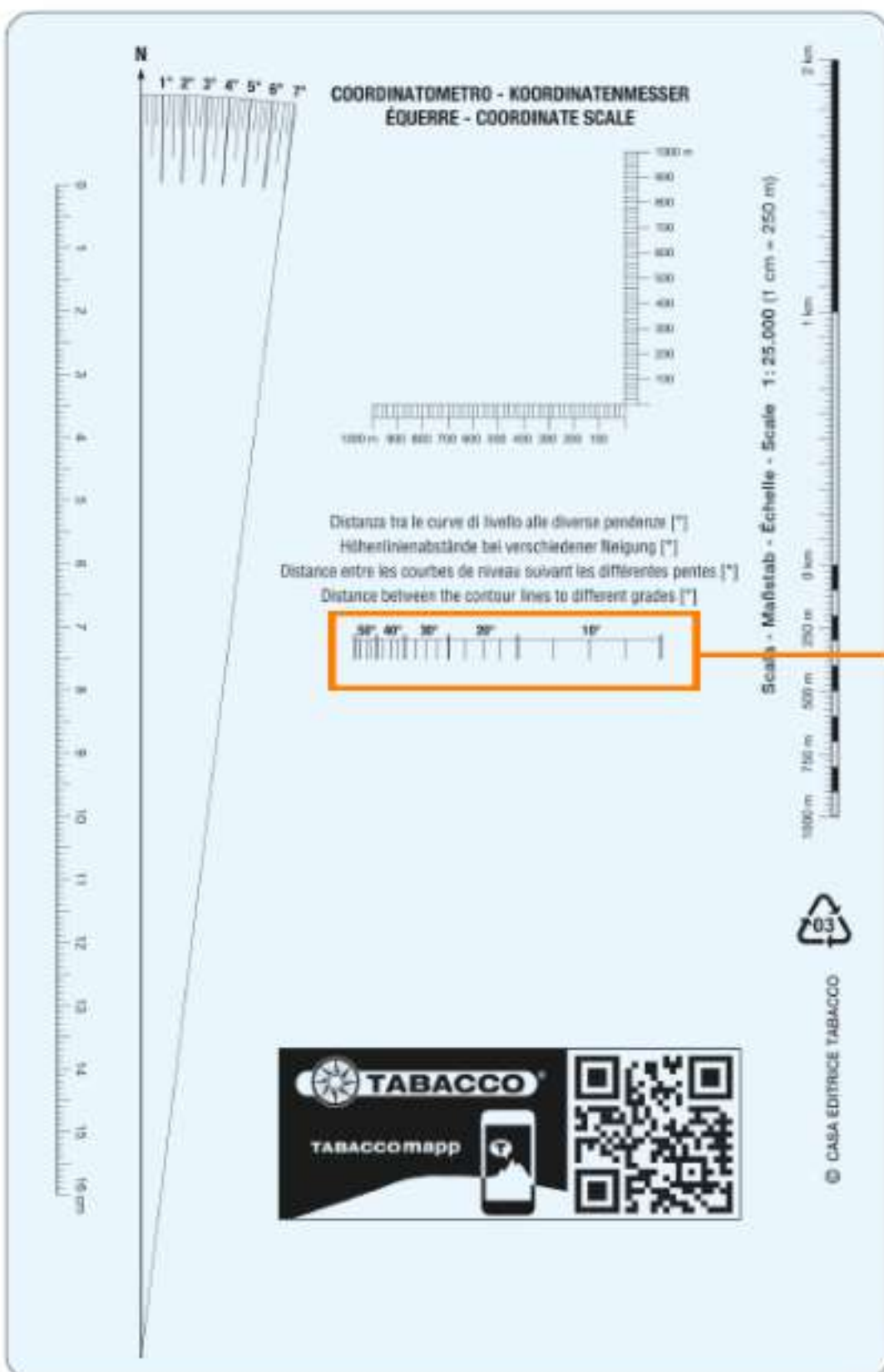
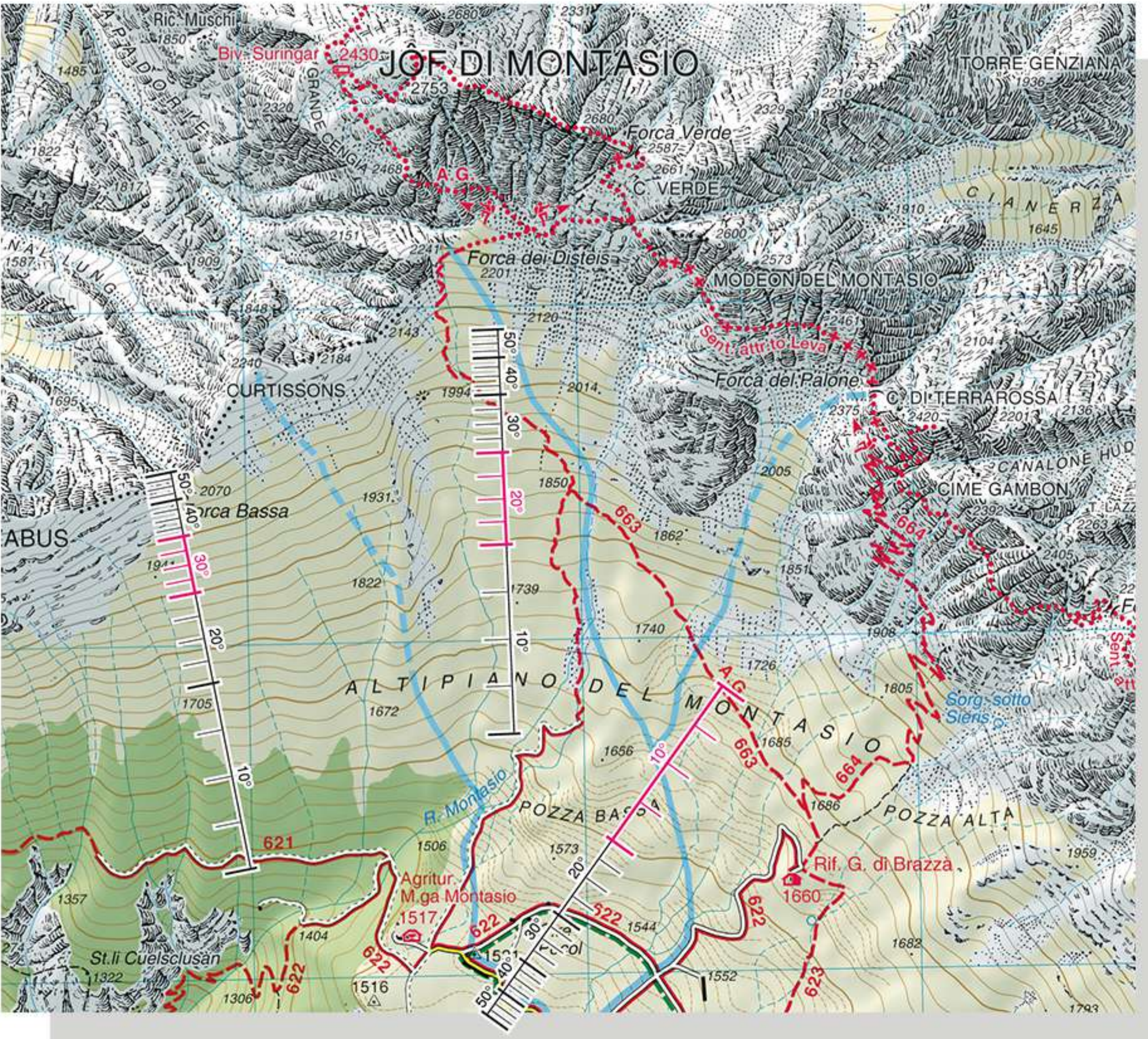
(Hinweis: mit dem
 Koordinatenmesser kann der
 Abstand mit einer Abweichung
 von 10-20 m ermittelt werden).

Die UTM-Koordinaten von Punkt
 P sind daher:

$$(E) x = 288000 \text{ m} + 680 \text{ m} \\ = 288680 \text{ m}$$

$$(N) y = 5150000 \text{ m} + 490 \text{ m} \\ = 5150490 \text{ m}$$

BEURTEILUNG DER HANGSTELTHEIT



Umschlag

BEURTEILUNG DER HANGSTEILHEIT

Auf der topographischen Karte, senkrecht zu den Höhenlinien, die auf der Kartenhülle aufgedruckte Skala im Bereich des Punktes auflegen, in dessen Umgebung die Hangneigung ermittelt werden soll.

1

2

Mithilfe der Skala den Abstand zwischen zwei nebeneinanderliegenden Haupthöhenlinien (100 m) schätzen und den entsprechenden Steilheitswert in Graden ablesen.

INFORMATIONEN AM KARTENRAND

Kartographisches System

Ellipsoid: WGS84

Geodätisches Datum: WGS84, ETRS 89

Kilometer-Gitter: UTM

UTM-Zonen: 32, 33

Magnetische Deklination und Konvergenz des Gitters in Kartenmitte

N = geographisch Nord

Nm = magnetisch Nord

Ng = Gitternord

δ (delta) = magnetische Deklination

γ (gamma) = Gitter-Konvergenz

$\Delta\delta$ = jährliche Veränderung
der magnetischen Deklination

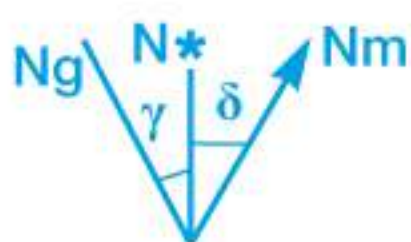
AUSRICHTUNG DER KARTE

Am Kartenrand sind die Werte der magnetischen Deklination in Kartenmitte und der Winkel zwischen magnetisch Nord, Gitternord und geographisch Nord angegeben. Der Winkel zwischen Gitternord und magnetisch Nord ermöglicht eine präzise Ausrichtung der Karte mit dem Kompass und eine einfache Routenberechnung. Die Winkelwerte sind in Bogengraden angegeben, um die Berechnungen zu vereinfachen.

Ellissoide WGS84
Sistema di riferimento WGS84, ETRS89
Reticolo chilometrico UTM - Fuso 33

DECLINAZIONE MAGNETICA E CONVERGENZA
DEL RETICOLO AL CENTRO CARTA
X = 850000, Y = 5154000 (1° GENNAIO 2017)

$\delta = +3,37^\circ$
 $\gamma = -1,05^\circ$
 $\delta - \gamma = 4,42^\circ$



N = Nord Geografico
Nm = Nord Magnetico
Ng = Nord Reticolo

δ = Declinazione magnetica
 γ = Convergenza reticolo
 $\Delta\delta$ annuale = + 0.12°