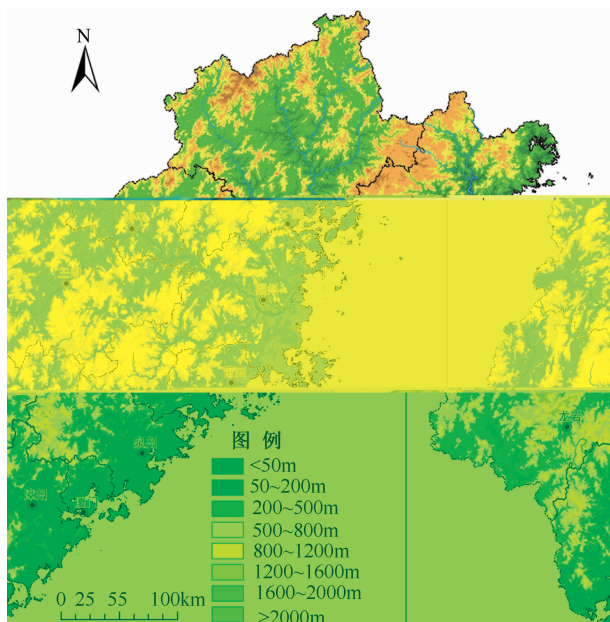


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2

115°50'~120°43'E, 23°32'~28°19'N, 540km, 550km。 12.14 km²。 NNE - SSW, - - ()。 NE - SW, ; ; (1)。



1

Fig. 1 The hypsometric map of Fujian Province

2158m; 85%。

1:10 DLG DEM^[22]

1000m
≤2° 13.1%,
≤15° 41.1%, >15°
58.9%, ≥25°
24.3%。

3

3.1 地貌形态分类标准及定义

3.1.1

≤2°
≤5°
()

3.1.2

()

3.1.3

1:100
6
(1) : ≤2°
5°
① () : ≤2°
≤5m
② () :

- 5~50m , 、
- (2) :
- ① : <200m 。
- : 100~200m。
- : <100m。
- ② : ≥200m 。
- : ≥200m, <1000m
- 。
- : ≥200m, ≥1000m
- 。

3.2 基于 DEM 与 DLG 的地貌形态分类实验

3.2.1

: 1:10 DLG(Gauss-Kruger , 1954 , m) DEM。

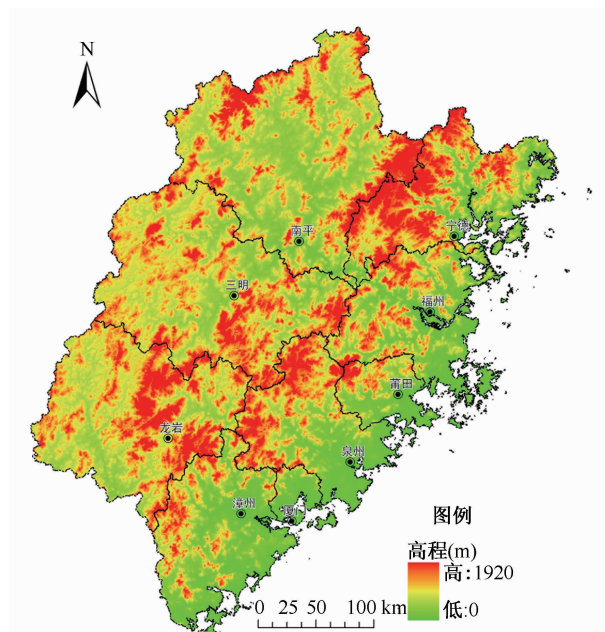
: ESRI ArcGIS (ArcGIS ArcInfo) (ArcInfo Work-station)。

DEM :

(TIN) , TIN , ; TIN ; DEM(GRID) , 30m×30m DEM^[22]。

3.2.2

- (1) : SLOPE() DEM 。
- (2) : 1:10 DLG, ArcGIS 318 082 , (TIN) , (2)。
- (3) : 1:10 DLG , (30m×30m) 。
- (4) : ① ARCGIS , ≤ 2°, ≥0.1km² () , , ② ≤5° ,
- (5) : ①



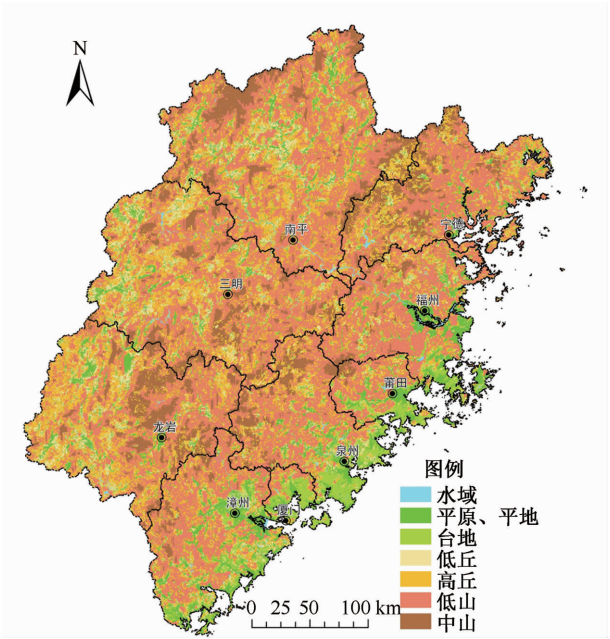
2

Fig. 2 The relative reference surface of Fujian Province

- , DEM -1, , ②
- , ArcGIS , D8 [22] , , (0.1km²), , (6) :
- (7) 、 、 : ① ArcGIS , , ≤5m ; ②
- (8) : ZON-ALRANGE() ZONALMAX() : ≤100m ; 100~200m

； >200m ， ， ≤1000m
，>1000m 。
(9) ： MERGE()
GRIDINSERT ，
，
，
(3)。
1。 1
， 34.1%，
51.8%， 85.9%，
13.1%。

[24] (1 :
160) ， 1 : 10 DLG，
： (1)
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，
[14] ，
() () ，
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3
Fig. 3 Geomorphological types of Fujian Province

表 1 福建省地貌各形态类型面积和所占比例
Tab. 1 The area and proportion of geomorphological
types of Fujian Province

(km ²)	0. 11	1. 23	0. 37	0. 99	3. 15	4. 95	1. 33
(%)	0. 9	10. 1	3. 0	8. 2	25. 9	40. 8	11. 0
	0. 9	10. 1	3. 0	34. 1		51. 8	

4
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Auto-Classification of Geomorphological Types Based on DLG and DEM for Fujian Province

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Abstract: Base on Digital Line Graphic (DLG) at 1:100,000 scale and Digital Elevation Model (DEM; 30×30 m resolution), firstly, the geomorphological types of Fujian Province can be divided into two basic types according to the two main combinational indicators slope and area: shallow-slope region and hill-mountain (steep-slope) region. Secondly, the elevational points that contours the river system in DLG are extracted by ArcGIS software. On this basis, the relative reference surface of Fujian Province is construc-

ted through spacial interpolation method. Thirdly, geomorphological entities in steep-slope region are divided into taper units with the method of watershed hydrological model. Finally, according to the 1:1,000,000 Geomorphological Mapping Specification for China, combining the geomorphological characteristics of Fujian Province, and overlaying the above-mentioned geomorphological entities and relative reference surface of Fujian Province respectively, the geomorphological entities of Fujian Province can be divided into six types, i. e. , plain, platform, low relief hill, high relief hill, low relief mountain and intermediate relief mountain. The result shows: among geomorphological types of Fujian Province, hill accounts for 34.1%, mountain accounts for 51.8%, both together account for 85.9%, and plain, flat and platform together account for only 13.1%. The result is basically identical to that by traditional manual mapping. The methods developed in this article are corresponding to traditional classification system of geomorphology for Fujian, and can automatically classify the geomorphological entities fast and well, such as the shallow-slope region and hill-mountain region, plain and platform, which are feasible according to precision and efficiency, saving manpower, material resources and financial resources greatly, and offering a new thinking and methodology for domestic and international similar researches.

Key words: geomorphological types; DLG; DEM; Fujian Province