

Jeju is an island, volcanic in origin, situated on the continental shelf 90 km south of the Korean Peninsula. Specifically, Jeju Island is located between 33°11'27" and 33°33'50" north in latitude and between 126°08'43" and 126°58'20" east in longitude. The island is a slightly flattened ellipse, ~70 km in length from south-south-west to north-north-east, and varying from 30~35 km in width. In addition there are a number of rocky islets just offshore. The east side of Jeju faces Tsushima and Nagasaki in Japan across the South Sea of the Korean Peninsula and the East China Sea. The west side of the island faces Shanghai in China across the East China Sea. Jeju is 450 km from Seoul, 270 km from Busan, 330 km from Fukuoka in Japan, and 500 km from Shanghai in China.

Jeju Island is a province of the Republic of Korea; it has singular status as the Jeju Special Self-Governing Province. It is divided into two Administration District and further divided into 43 smaller units variously termed 'eup', 'myeon' or 'dong'. There are two major cities and 556 natural villages large and small. It has an area of 1,814 km² (Figs. 2.1 and 2.2).

2.1 Climate

Located in eastern region of the continent, and in the mid-latitudes of the Northern Hemisphere, Jeju has strong characteristics of east-coast climate, experiencing clear changes of season. Because of its geographic settings as a lone island off in a distant sea, Jeju experiences relatively short winters and longer summers. While it is affected, as other areas in Korea, by the northwest wintertime monsoon, Jeju is also affected by the southwest and southeast monsoons in summertime. Hallasan, being in the center of the island, causes climatic characteristics of each region. Climatic differences of the surrounding seawaters are responsible for significant influences on various geographical features and also on the lives of the regions inhabitants. According to Köppen's classification of climate, the climate of Jeju is classified as a subtropical humid climatic regime (Köppen Cfa) so that most

areas, except mountainous regions, maintain a mild winter with relatively consistent precipitation.

The average annual temperature of Jeju is 15.5 °C; the average temperature in August, the warmest month, is 26.5 °C; the average temperature in January, the coldest month, is 5.6 °C. The average annual temperature of the city of Gosan, located in the west of Jeju City, is 15.5 °C; the average temperature in the warmest month of August is 26.1 °C; the average temperature of the coldest month of January is 6.3 °C. Gosan has higher temperatures than Jeju City during winter because of strong winds in Gosan that prevent cooling, while lesser wind activity in Jeju results in more active cooling. The temperature regime is influenced by the nearby oceanic currents.

The precipitation of Jeju is influenced mainly through cyclone activity: precipitation of seasonal rain takes place mostly in summer months and precipitation caused by typhoons takes place in both summer and autumn. There is also a very limited amount of precipitation caused by Siberian anticyclone activity in wintertime. Precipitation is largely caused by southwest and southeast air currents. In winter time precipitation is often caused by the northwest air current. Jeju has the highest annual precipitation of Korea ranging from 1,000 to 1,800 mm. The average annual precipitation at is 1,457 mm; Jeju City and 1,851 mm at Seogwipo. Seasonal variations in the precipitation of Jeju Island are wide: 47 % of the rain falls in summer, while 12 % falls in winter.

Jeju is famous for its wind. Wind velocities are very high and the daily frequency is consistent. The average annual wind velocity of Jeju City is 13.6 kph and Gosan's is 24.8 kph; this compares with Seogwipo's and Seongsanpo's 11.2 kph. The northwest slope of Hallasan maintains constant and significantly stronger wind velocities. Gosan, in particular, records average wind velocities at more than 50 kph for a period of at least 80 days compared to Jeju City's 14.5 days, Seogwipo's 2.8, and Seongsanpo's 0.9 days. The most important wind in Jeju Island is the northwest monsoon in wintertime. The average annual wind velocity in Gosan reaches 33.5 kph, whereas Jeju reaches 16.9 kph. In terms of the wind direction, Jeju maintains a high frequency of northwest

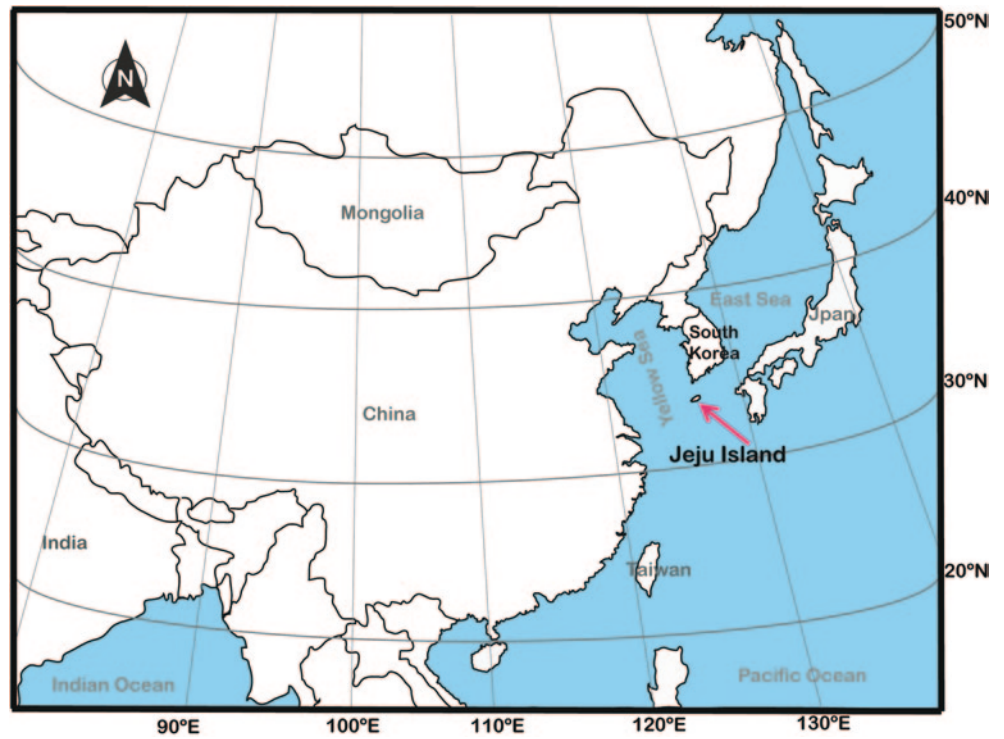
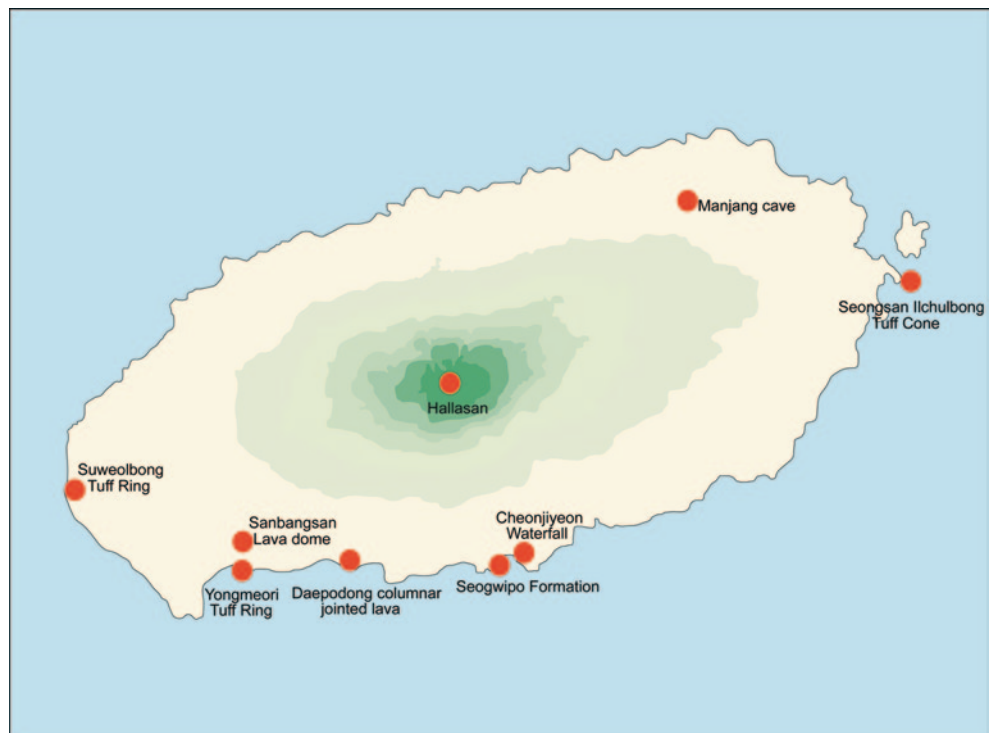
Fig. 2.1 Location of Jeju Island**Fig. 2.2** Location of nine geosites in the Jeju Island Geopark

Fig. 2.3 Aerial view of the Seongsan Ilchulbong Tuff Cone and Hallasan in the back. Both are the World Heritage sites



Fig. 2.4 Scenic view of a trachyte dome at the peak with azaleas blooming in spring



winds in winter and east winds in summer. The strong winds in Jeju have had a significant influence on the natural environment and on the lives of its inhabitants.

2.2 Natural landscapes

Jeju Island was formed from volcanic activity occurring during the Quaternary period. As a result, the drainage system, mountain system and coastal topography of Jeju show speci-

fic characteristics related to how and when the volcanic activities occurred. The plan of Jeju is an oval with a major axis of N70°E, which parallel with the south coastline of the Korean Peninsula, and is accord with NE-SW tectonic lines on the Korean Peninsula. The island as a whole formed from a shield volcano with Hallasan as a central, and main, erupted center. The coastline, approximately 253 km long, is generally unvaried and mostly made up of rocky shores exposed volcanic rock, and occasionally small-sized pocket beaches with a limited number of sand dunes in some areas.



Fig. 2.5 Scenic view of trachybasalt columns (Five Hundred Diciples of Buddha) in Hallasan

The overall geomorphologic features of Jeju Island are, in large part, divided into three categories as follows:

- Lava plateaus developed in lower parts of coastal areas;
- The shield volcano of Hallasan in the center of the island; and
- Volcanic cones and craters (oreums in the Jeju dialect) surrounding Hallasan.

At the summit of Hallasan, there is a crater lake named Baeknokdam with maximum and minimum width of 585 and 375 m, respectively. About 360 volcanic craters and cones lie scattered about the major axis of the island so that they dominate the overall topography and scenery of Jeju. Volcanic activity along the coastal regions had occurred in a watery environment, causing the formation of tuff rings and cones, and later on the constant seawater erosion continued to create unique and ever-evolving coastal landscapes. Another geomorphologic feature of Jeju Island is the large-scale lava tubes which have developed underground. Lava of low viscosity and high fluidity flowed repeatedly toward the ocean from the volcanic centers around Hallasan so that world-scale lava tubes were created beneath the surface.

Jeju's drainage system is made up of streams that radiate outwards from the central high-point of Hallasan. While drainage systems created from wide lava plateaus formed on the gentle east-west slope of Hallasan are less evolved, most watercourses were developed on the north-south slopes and run either southbound or northbound. Owing to nature of the geological features there are no permanently running streams on Jeju. Water from upper streams runs into the underground through permeable layers developed on the edges of lava flows or along columnar joints in the streambeds. Although the ground water rises to the surface near the seashores, sometimes forming waterfalls, most of water courses in Jeju are dry stream beds for much of the year (Figs. 2.3, 2.4 and 2.5).

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