模型訓練 成果:

```
history = model.fit_generator(train_gen,
                              steps_per_epoch=500,
                              epochs=20,
                              validation_data=val_gen,
                              validation_steps=val_steps)
```

```
Epoch 1/20
<ipython-input-40-4f77649be1a6>:1: UserWarning: `Model.fit_generator` is deprecated and will be removed in a future version. Please use `Model.fit`, which supports generators.
  history = model.fit_generator(train_gen,
500/500 [==============================] - 109s 213ms/step - loss: 0.2991 - val_loss: 0.2791
Epoch 2/20
500/500 [==============================] - 106s 212ms/step - loss: 0.2738 - val_loss: 0.2704
Epoch 3/20
500/500 [==============================] - 108s 217ms/step - loss: 0.2655 - val_loss: 0.2529
Epoch 4/20
500/500 [==============================] - 105s 211ms/step - loss: 0.2542 - val_loss: 0.2690
Epoch 5/20
500/500 [==============================] - 105s 210ms/step - loss: 0.2479 - val_loss: 0.2629
Epoch 6/20
500/500 [==============================] - 107s 213ms/step - loss: 0.2410 - val_loss: 0.2370
Epoch 7/20
500/500 [==============================] - 104s 208ms/step - loss: 0.2331 - val_loss: 0.2683
Epoch 8/20
500/500 [==============================] - 104s 209ms/step - loss: 0.2257 - val_loss: 0.2519
Epoch 9/20
500/500 [==============================] - 106s 212ms/step - loss: 0.2203 - val_loss: 0.2190
Epoch 10/20
500/500 [==============================] - 104s 208ms/step - loss: 0.2157 - val_loss: 0.2798
Epoch 11/20
500/500 [==============================] - 106s 211ms/step - loss: 0.2104 - val_loss: 0.2266
Epoch 12/20
500/500 [==============================] - 105s 209ms/step - loss: 0.2065 - val_loss: 0.2067
Epoch 13/20
500/500 [==============================] - 105s 209ms/step - loss: 0.2014 - val_loss: 0.3007
...
Epoch 19/20
500/500 [==============================] - 111s 222ms/step - loss: 0.1821 - val_loss: 0.2816
Epoch 20/20
500/500 [==============================] - 105s 210ms/step - loss: 0.1791 - val_loss: 0.1772
Output is truncated. View as a scrollable element or open in a text editor. Adjust cell output settings...
```

```
mae = model.evaluate_generator(test_gen, steps=test_steps)
print("Test MAE:", mae)
```

```
<ipython-input-41-d159bb206be2>:1: UserWarning: `Model.evaluate_generator` is deprecated and will be removed in a future version. Please use `Model.evaluate`, which supports generator
  mae = model.evaluate_generator(test_gen, steps=test_steps)
Test MAE: 0.17701712250709534
```

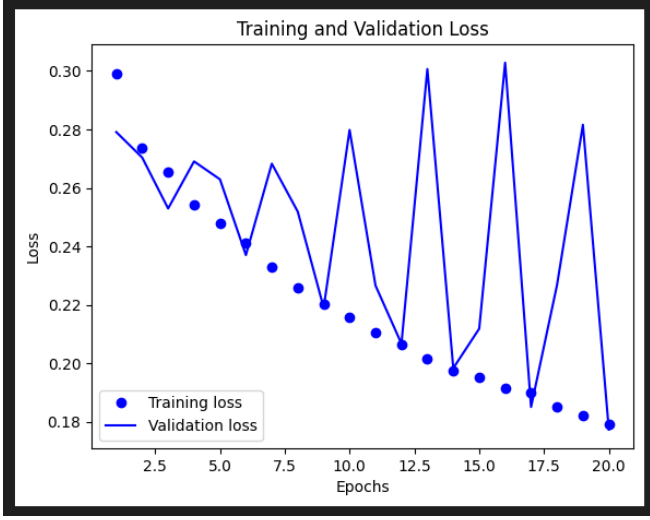
準確率

```
import matplotlib.pyplot as plt

loss = history.history['loss']
val_loss = history.history['val_loss']

epochs = range(1, len(loss) + 1)

plt.figure()
plt.plot(epochs, loss, 'bo', label='Training loss')
plt.plot(epochs, val_loss, 'b', label='Validation loss')
plt.title('Training and Validation Loss')
plt.xlabel('Epochs')
plt.ylabel('Loss')
plt.legend()
plt.show()
```



未來天氣預測

```
plt.figure()
plt.plot(range(len(predictions)), predictions, 'b', label='Predictions')
plt.plot(range(len(targets)), targets, 'r', label='Actual')
plt.title('Temperature Predictions vs Actual')
plt.xlabel('Time Steps')
plt.ylabel('Temperature')
plt.legend()
plt.show()
```