```python
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.ensemble import RandomForestRegressor
from sklearn.metrics import mean_squared_error
import matplotlib.pyplot as plt

# Sample air quality data (replace with your actual data)
data = {
    'date': ['2023-01-01', '2023-01-02', '2023-01-03', '2023-01-04', '2023-01-05'],
    'ozone': [30, 35, 32, 38, 34],
    'pm25': [50, 55, 53, 59, 56],
    'air_quality_index': [65, 70, 68, 75, 72]
}
df = pd.DataFrame(data)

# Convert date to datetime objects
df['date'] = pd.to_datetime(df['date'])

# Extract features and target variable
features = ['ozone', 'pm25']
X = df[features]
y = df['air_quality_index']

# Split data into training and testing sets
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)

# Train a Random Forest Regressor model
model = RandomForestRegressor(n_estimators=100, random_state=42)
model.fit(X_train, y_train)

# Make predictions
y_pred = model.predict(X_test)

# Evaluate the model
mse = mean_squared_error(y_test, y_pred)
print(f"Mean Squared Error: {mse}")

# Visualize predictions (optional)
plt.scatter(y_test, y_pred)
plt.xlabel("Actual Air Quality Index")
plt.ylabel("Predicted Air Quality Index")
plt.title("Actual vs Predicted Air Quality Index")
plt.show()
```