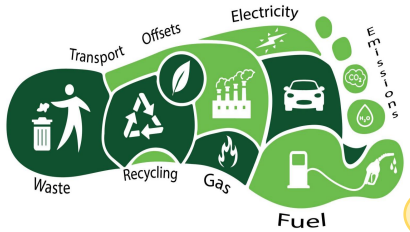
Our Work → Problem Analysis (Ⅰ) → Data Preparation (Ⅱ) → Model Construction (Ⅲ) → Sensitivity Analysis (Ⅳ) → Model Extension (Ⅴ) → Memorandum (Ⅵ)

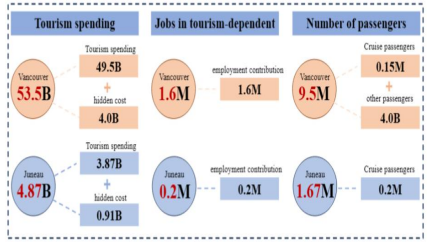
Data collection for the cities of Juneau and Vancouver (Ⅱ)

- Economic Benefits
- Social Benefits
- Ecological Benefits

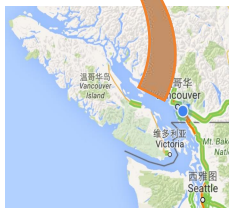


Consumption + Resident

Carbon dioxide



Sea level



The Sustainable Multi-objective Tourism Optimizer (SMTO) (Ⅱ)

N_t C_t B_t W_t 

N_t B_t D_t W_t 

N_t V_t 

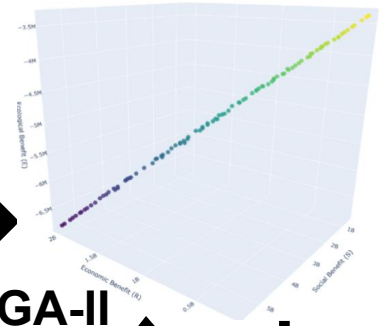
$$R_t = N_t \times (C_t - B_t) + W_t$$
$$S_t = \alpha_1 N_t \times B_t + \alpha_2 D_t + \alpha_3 W_t$$
$$E_t = -\beta_1 N_t - \beta_2 V_t$$

SMTO

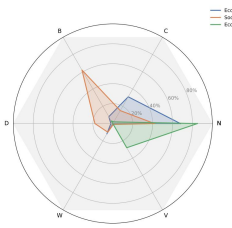
Constraint condition

Maximize R_t
Maximize S_t
Maximize E_t

NSGA-II

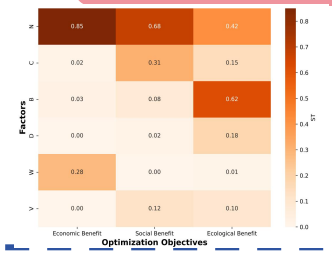


Sobol sensitivity analysis



$$Y = f(X_1, X_2, ..., X_K)$$

$$D = \sum_{i=1}^{k} D_i + \sum_{1 \le i \le k} D_{ij} + ... + D_{1,2,...,k}$$



Sensitivity Analysis and Generalization (Ⅳ) (Ⅴ)

NEW $S_{new,\ t} = \alpha_1 (N_t \cdot B_t) + \alpha_2^{high} D_t + \alpha_3 W_t$ *weight of D*

$$E_{new,\ t} = \beta_1 N_t + \beta_3 V + \gamma \cdot \frac{\nabla V}{\nabla t}$$

the rate of sea level

Update of the constraints