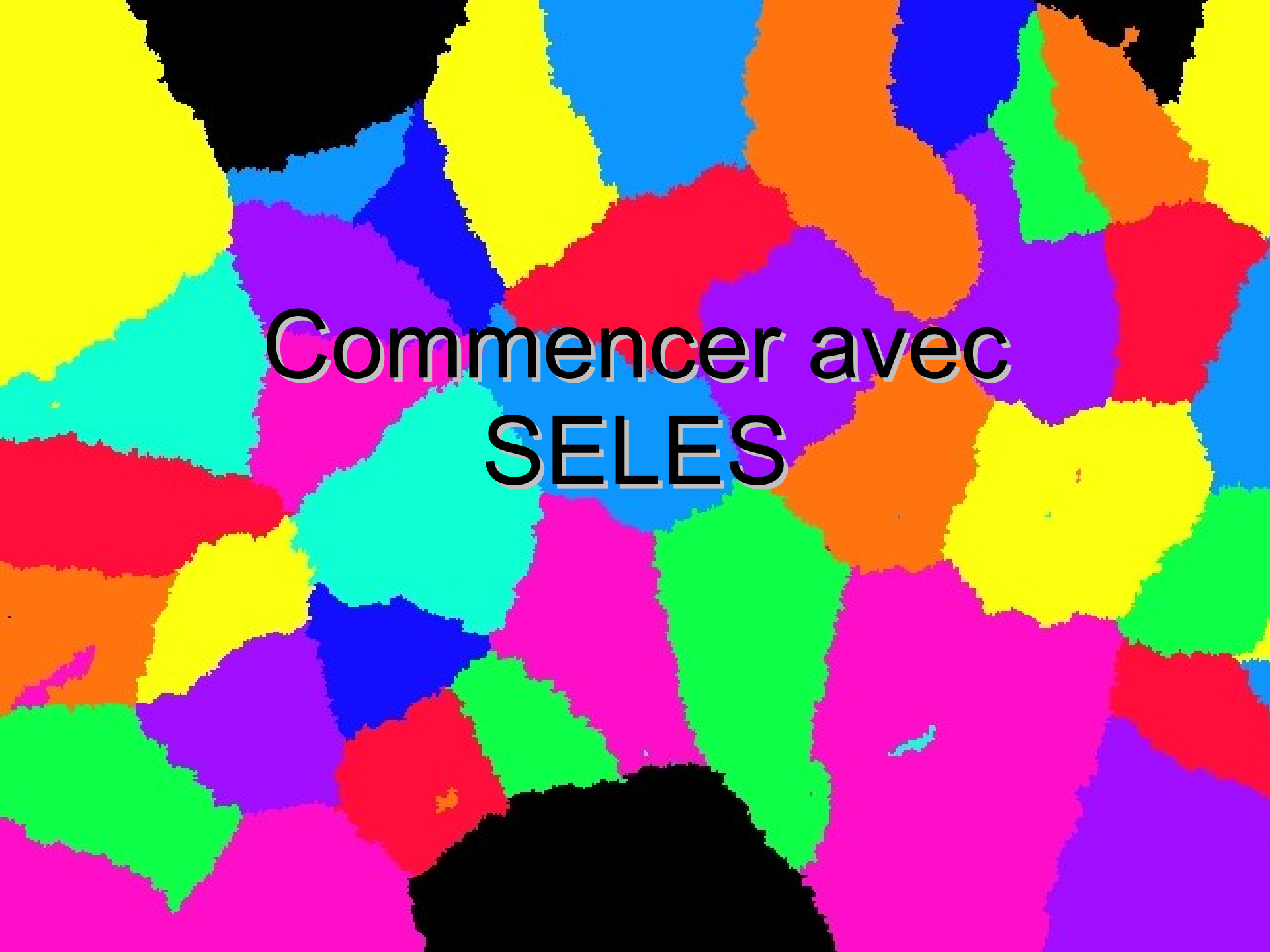
Commencer avec
SELES

Combien de temps pour un modèle simple - Papillon

- 5 jours, cours
- 2 semaines, modèle conceptuel
- 2-3 semaines, le noyau du modèle
- 3 semaines, les ajustements fins
- 4-8 semaines calibration
- 4-8 semaines de simulations (beaucoup d'individus)
- La réponse au problème: 4-6 months
- Prochaine fois: 2 mois

Structure SELES

- 3 types de fichiers:
  - Scenario file (.scn)
  - Model file (.sel)
  - Landscape Event/Agent files (.lse)
- Tout modèle SELES est constitué d'au moins un fichier de chaque type. Il peut avoir plusieurs .sel ou .lse

Scenario File (.scn)

- Indique à SELES:
  - Quel fichiers, cartes, modèle utiliser
  - Quel .sel
  - Dimensions du modèle (e.g., 100X100 pixels)
  - Si commencer automatiquement ou pas
  - Comment arranger les fenêtres (cartes) dans une simulation SELES
  - Contrôle des simulation « batch »

.scn

LSEditor - [Wolf.scn]

File Edit View Window Help Parse

```
Scenario Information

    MapOfPacksID = gis_data\cell\MapOfPacksID
    HabitatSuitability = gis_data\cell\HabitatSuitability
    RVSites = gis_data\cell\RVSites

    Model Dimensions: MapOfPacksID

    Wolf.sel

    SimPriority Low Priority

    Minimize TemporaryWolfTransition
//    Minimize HabitatSuitability
//    Minimize PotentialTerritory
//    Minimize Visited
//    Minimize DistanceFromPacks
    Minimize RVSites
//    Minimize MapOfPacksID
    Minimize MapDisperser
    Minimize FoundTerritoryMap


    TILE
// Variables for Output
// $PopulationSize$
```

SELES Model File (.sel)

- Indique à SELES:
  - Qu'est-ce qui indique les unités de temps (ex.: “une journée”)
  - Quels fichiers .lse utiliser
  - Quelles cartes (layers) vont être intrants (inputs) et lesquelles vont être extrants (outputs)
  - Définition des variables globales ou spatiales
  - Définition des limites des variables

.sel

LSEditor - [Wolf.sel]

File Edit View Window Help Parse

```
Seles Model

Time Units: Year Century 100 100

Landscape Events:
     Reproduction.lse DEBUG  //Number of new pups determined and main landscape agent file for the wolf population pr
     Dispersal.lse DEBUG  //How wolves disperse and select a new area where they can establish a new territory and ho
     Territory.lse DEBUG  //Spreading logic to determine the establishment of new wolf territories
     PresenceFreeArea.lse DEBUG  //Spreading logic to determine if there is another pack near by

Variable-Input View Maps:
   MapOfPacksID // Habitat Structural Stage map (static)
   HabitatSuitability // Should be a probability map linked to dependent variables layers
   RVSites // Should be a probability map of sites available for reproduction linked to dependent variables layers

Variable-Output View Maps:
   WolfAlive //Used to track number wolves at end sim to compare to pop size variable
   MapWolfFounders // To see where each wolf (with the ID) is
   MapDisperser // Shows where the dispersers start from

   PotentialTerritory //
   PackTerritories //
   WolfMovement  // Wolf movement map (on screen only)
   Visited  //Keeps track of pixels that a wolf has moved to
   DistanceFromVisited

   DistanceFromPacks
   FoundTerritoryMap

Global Constants:
   WolfColor = 32
   CellWidth = 1000 //in meters
   StartingNumTerritories = 3

Global Variables:
   Age[10000] = 0
   WolfSex[10000] = 0
   WolfType[10000] = 0
   WolfStatus[10000] = 0
   NumPacks = 0
   WolfLocation[10000] = 0
   DispWolfLocation[10000] = 0
   DispWolfLocation2[4,10000] = 0
   DispWolfID2[10000] = 0
   DispWolfID[10000] = 0
   DispWolfLocationTemp[10000]  = 0
   DispWolfLocationTemp2[10000]  = 0
   NumInEachPack[100] = 0
   WhichWolf[1000] = 0
   TerritoryAttempts[10000] = 0
   DispWolfLocationTemp3[10000] = 0
//   WhichWolf3[10000] = 0

   JuvCounter = 0
   PackCounter = 0
   WolfCounter = 0
   Survive[10000] = 0
```

Landscape Event ou Agent file (.lse)

- Indique à SELES:
  - Le noyau de la simulation
  - Les règles de mouvement (movement), propagation (spreading), interactions entre les cartes (layers)
  - Modèle des feux, des routes, de la reproduction, de l'aménagement
  - Normalement, chaque .lse serait pour un processus, mais on peut en avoir plus

.lse

LSEditor - [Reproduction.lse]

File Edit View Window Help Parse

```
LSAGENT: Reproduction  //Main landscape agent file for the wolf population process, survival and reproduction

DEFINITIONS

       LAYER: MapOfPacksID, WolfAlive, MapWolfFounders, MapDisperser, PackTerritories, FoundTerritoryMap

       GLOBAL VARIABLE: Age[], WolfSex[], WolfType[], WolfStatus[], NumPacks, NumInEachPack[]
       GLOBAL VARIABLE: WolfCounter, JuvCounter, PackCounter, Survive[], NumDispersers , DisperserIDs[]
       GLOBAL VARIABLE: InitialPopSize, PopulationSize, JuvenilePopSize, NumberJuvDied, NumberAdultDied, SuccessfulDisperserIDs[]
       GLOBAL VARIABLE: PackNumGlobal[], WolfNewPackLocation[], DispWolfLocation[], DispWolfLocation2[]
       GLOBAL VARIABLE: NumSoFarThisYear

       GLOBAL VARIABLE:  WolfLocation[]

       GLOBAL CONSTANT: WolfColor
       GLOBAL CONSTANT: StartingNumTerritories

       POPULATION VARIABLE: PackNum, WolfAlphaMale, WolfAlphaFemale, BreedingPair

       AGENT VARIABLE: Pups, WolfID, WolfLocationAgent

       MIN OUTPUT VARIABLE: EndOfEachSimulation = EndOfEachSimulation.txt

ENDDEF


INITIALSTATE

 INITIALSTATE = 1

ENDIS


NUMPOPULATIONS // This is only run once at the start of the simulation
  NumSoFarThisYear = 0
  NumInEachPack = 0
  PackCounter = 0
  WolfCounter = 0
  NumDispersers = 0
//  WolfLocation = 0

     NUMPOPULATIONS = StartingNumTerritories  // I decided to start with 5 territories, these should be the 5 real packs from the Cuneo

  PackCounter = PackCounter + 1
  PackNum = PackCounter  // PackNum is a pop var that I will use only here to start the process
  NumPacks = PackCounter  // This will keep going up until StartingNumTerritories is reached
//  MapDisperser = 0

ENDNP


AGENTLOCATION

//PackNum is a population variable
//MapOfpacksID is a layer
```

Pour faire fonctionner SELES

- Créer un racourci vers seles.exe et le mettre à un endroit utile (e.g., desktop)
- Ouvrir SELES
- Choisir un .scn file
- Cliquer sur la flèche bleue (Simulation Control) et essayer!

Pour éditer les .lse, .sel, .scn

- Créer un racourci vers lseditor.exe et le mettre à un endroit utile (e.g., desktop)
- Ouvrir Landscape Editor
- Ouvrir un fichier .scn, .sel, ou .lse