

IAG Subcommittee 1.3 on Regional
Reference Frames

Working Group on Regional Dense Velocity Fields

... DENSIFICATION OF THE ACTUAL
ITRFyy SOLUTION ...

Ambrus Kenyeres
(Juliette Legrand)

WG STRUCTURE

- **REGIONAL COORDINATORS**

- Collect (crd+vel) SINEX data within the region,
- Remove constraints (if any),
- Harmonize of site naming and discontinuities,
- Combine the individual solution to a regional one

- **GLOBAL COORDINATORS**

- Harmonize of site naming and discontinuities,
- Combine and test regional solutions
- Create final product

REGIONAL COORDINATORS

- AFREF R Fernandes / L Combrinck
- Asia / Pacific J Dawson
- NAREF M Craymer
- EUREF A Kenyeres / J Legrand
- SIRGAS L Sanchez
- SCAR R Dietrich

GLOBAL D Lavallée / B King

PREPARATIONS

- Data guidelines
 - Permanent + epoch
 - Minimum data span : 2 years / 2 epochs{4 years}
- Submission guidelines
 - Constraints of the solutions (MC preferred)
 - Coordinate + velocity SINEX
 - SINEX format checker (DL)
 - **DOMES numbers (virtual ones)**
 - **Discontinuity harmonization (IGS-ALL)**
 - rel / abs PCV (negligible issue on velocities)
- Call for input - 2008

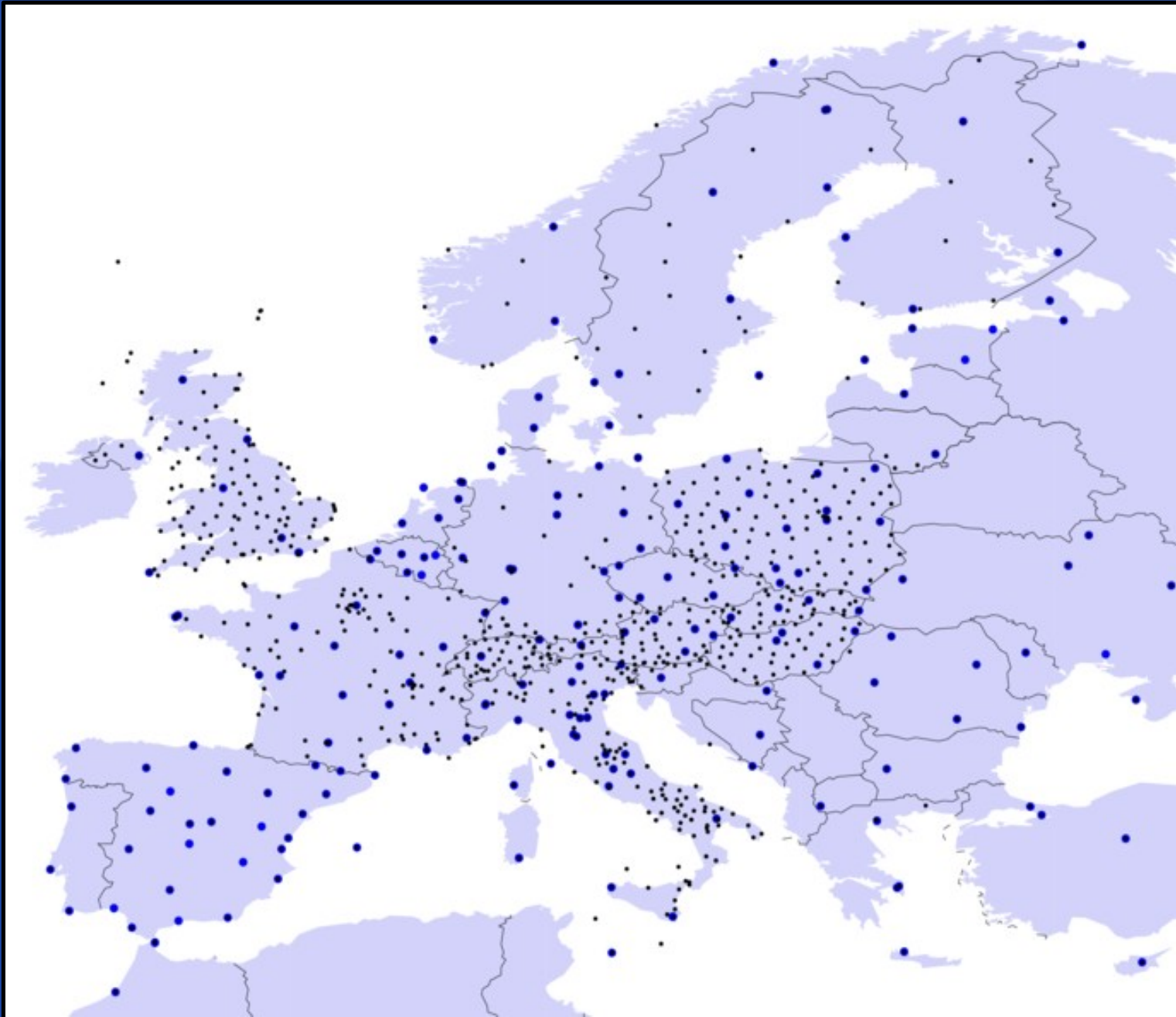
TREATED SOLUTIONS:

- **AGNES** (121 / 56 new - duplicates)
 - Bernese-style solution numbering and naming
- **AMON** (107 / 63 new - duplicates)
 - single solution number
- **ASI** (100 / 54 new)
 - DOMES No. / single solution number
- **INGV** (153 / 42 new) Ist.Naz.di Geofisica e Vulcanologia
 - Pending, SINEX problems
- **IGN** (161 - well prepared)
- **CEGRN** 80/42 new site in 8 campaigns 1994-2007

PROPOSED SOLUTIONS:

- **BKG** (117 - too young)
- **SGO** (75 / 50 new - too young)
- **NKG/BIFROST** (85 - under preparation)
- **ASG** - Poland (80 - still too young)
- **SGRN** - Slovakia (33 - under preparation)
- **UK** (131 - under preparation)
- (EUPOS not earlier than 2011)
- ???

PROPOSED SITES (ALL)



COMBINATION TOOL

CATREF

- MC approach
- Datum: 37 sites from the MUT cumulative
Intrinsic datum definition as alternative
- Iteration, internally defined weighting
 - Variance-covariance matrix scaling factors
 - Variance of unit-weight ~ 1
 - CATREF outputs (residuals, TRF parameters ...)

ANALYSIS STRATEGY

- REFERENCE SOLUTION:
EPN reprocessed cumulative solution (MUT)
- ONE-by-ONE pre-analysis
 - VIRTUAL DOMES numbering
 - Solution number corrections (wrt to EPN/IGS)
 - Test combination
MUT + the actual solution
 - Iterations, removal of outliers
- COMBINATION OF ALL SINEX
 - Iterations

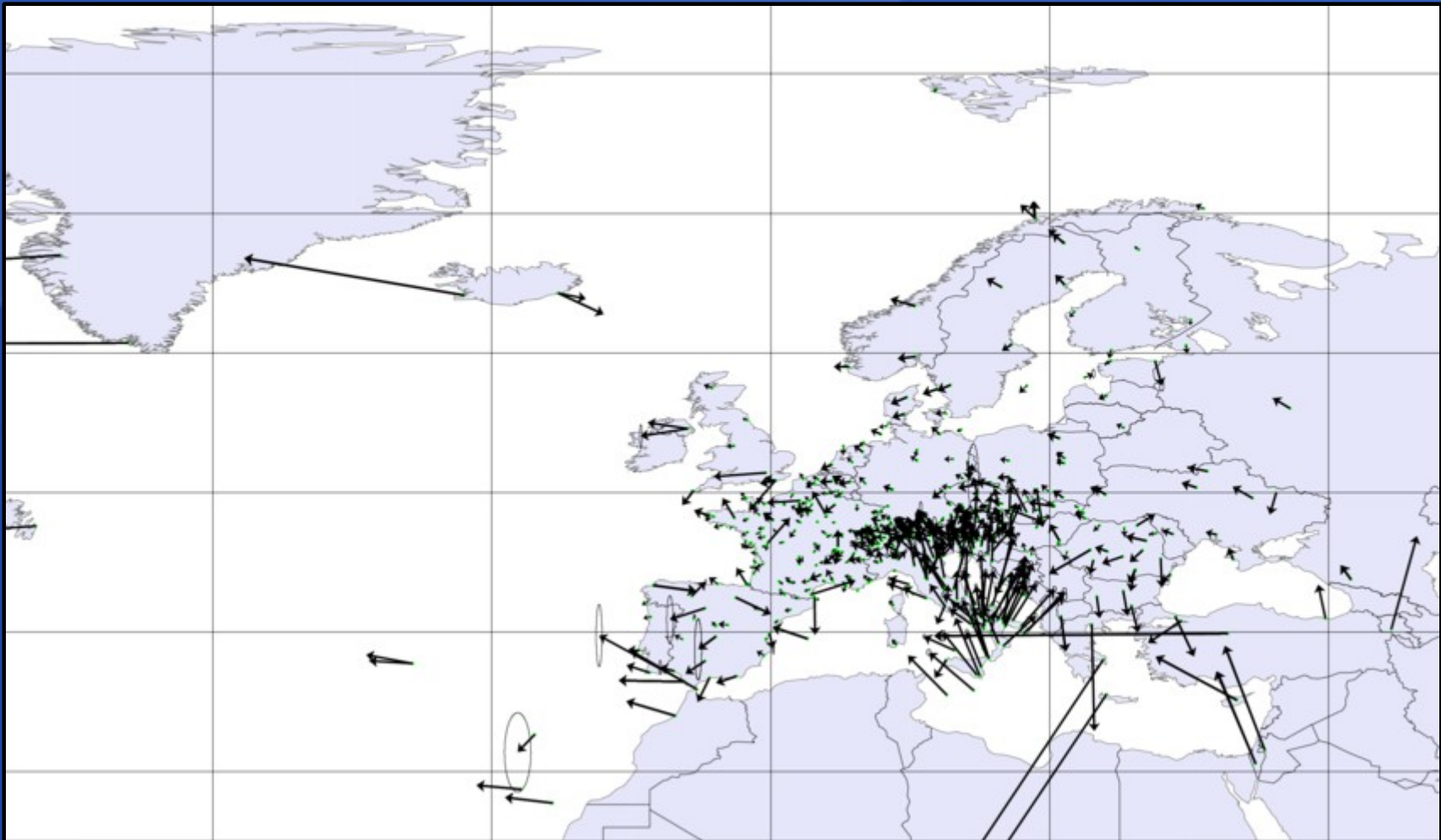
DRAFT SOLUTION 2009

LEARNING PHASE

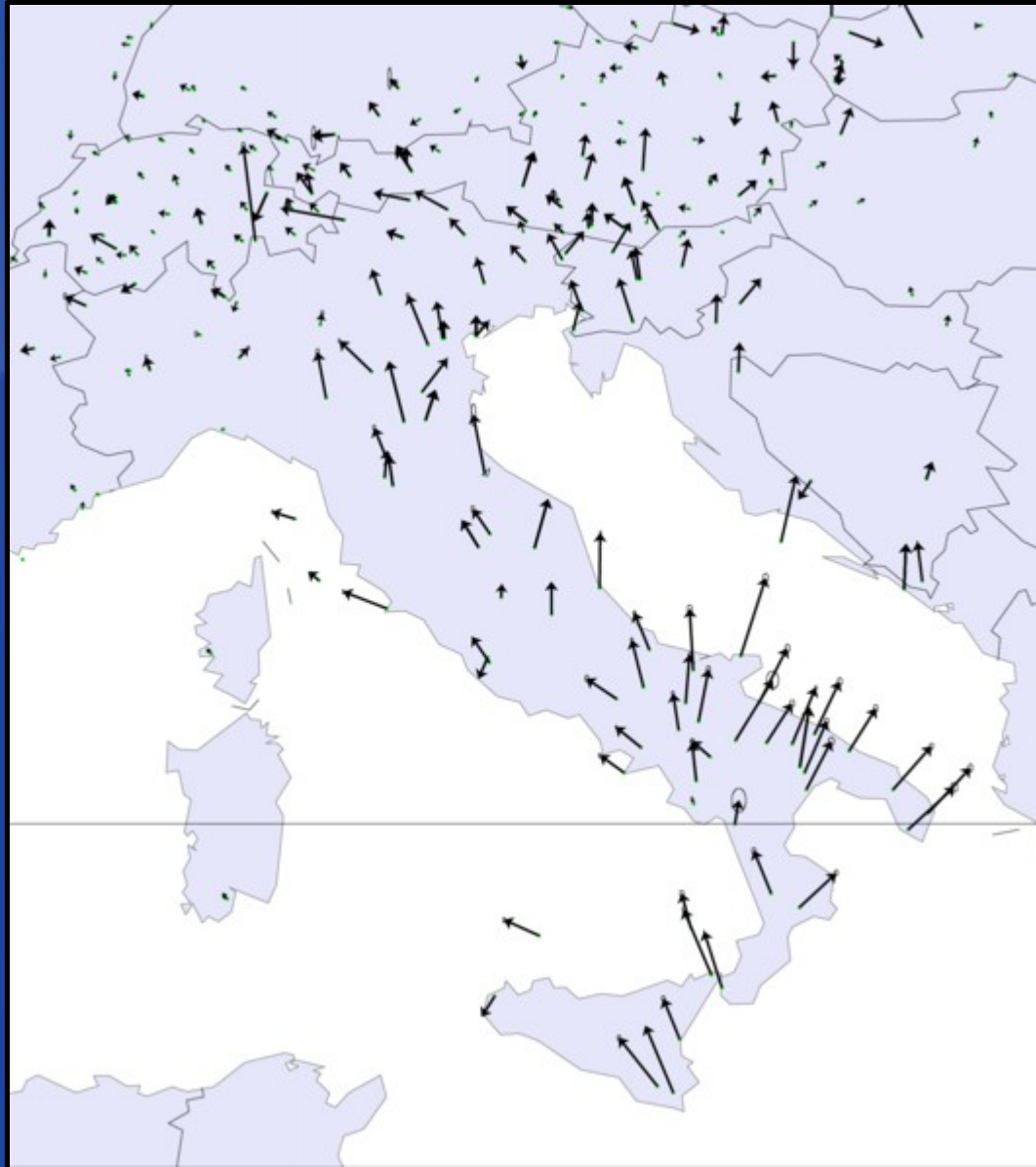
- MUT + AGNES, AMON, ASI, CEGRN, IGN
- ~ 500 sites (824 soln)
- Iterations, eliminating outliers
 - ~ 30 (soln) eliminations
 - biased velocity (short obs-hist)
 - few overlapping sites
- Submitted July 2009 (IAG ScAss BA)
- Comments from GLOBAL coordinator

STATUS as of 2009

ETRF00 velocities



MEDITERRANEAN/ETRF00 vel.



PLANS FOR 2010

- **ITRF2008 HARMONIZATION**
 - Complete revision of the current set (discontinuities, comparisons ...)
- INVOLVE PENDING SOLUTION(S)
 - INGV
- INVOLVE PROMISED SOLUTIONS
 - UK, SGO, SGRN, BIFROST, ASG
- UPDATE OF 'YOUNG' SOLUTIONS
- EXTENSION TO THE SOUTH
- **PREPARATIONS FOR THE WEEKLY COMBINATION**